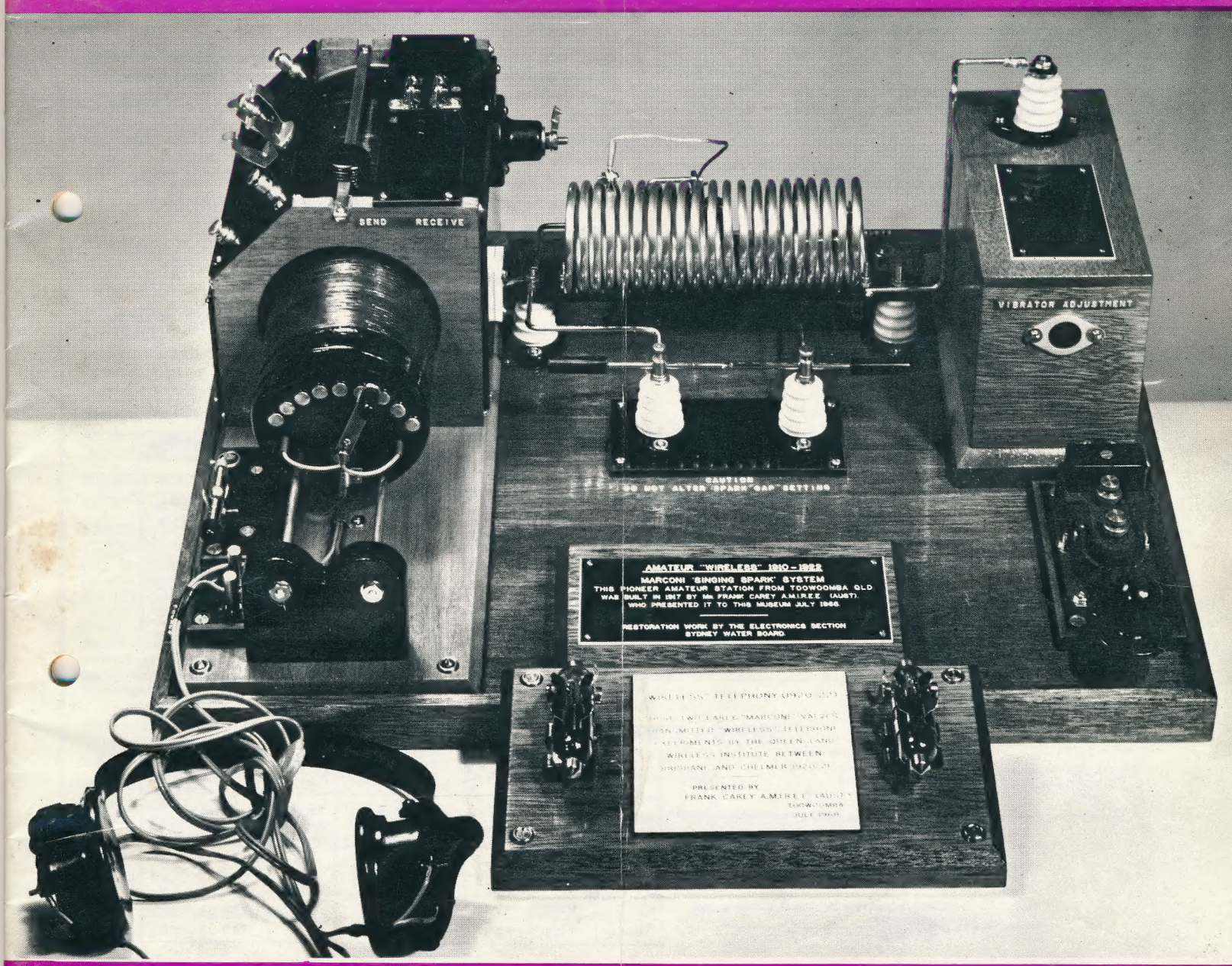
amateur radio

SEPTEMBER, 1973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RESTORATION WORK BY THE ELECTRONICS SECTION
SYDNEY WATER BOARD.

- IMPROVING LOUDSPEAKER REPRODUCTION FOR SSB
- MOBILE LINEAR FOR FT75
- HOLIDAY TIME
- MODIFICATIONS TO MR6A
- BARLOW WADLEY XCR-30
- A SAGA OF THE BUG

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

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C.G.S

TYPE C MINIATURE VITREOUS ENAMELLED POWER WIREWOUND RESISTORS

Approved to BS 9114 – N002 style 2E–56

SPECIFICATIONS

The 'C' Series of miniature wirewound, vitreous enamelled resistors has been designed to meet the requirements of Specification BS 9114 - N002, and full Qualification Approval has been granted. A Test Report Summary is available on request; this report shows that many of the performance levels are in fact much higher than the specification acceptance levels.

The use of specially selected materials, combined with the application of exacting quality control throughout all stages of production ensures the consistent achievement of a very high standard of reliability.

ELECTRICAL SPECIFICATION

Tolerance: ±5% is standard on values of 1Ω and above and ±10% between 0.1Ω and 1.0Ω. For non standard values and tolerances please consult the factory.

Resistance values: C Series resistors are available with the preferred ohmic values of the E24 Series within the ranges shown in Table 1.

Temperature coefficient: Typically less than 100 ppm/°C and never exceeding 200 ppm/°C over the category temperature range −55°C to +200°C

MATERIALS

Core: High purity steatite ceramic. Chemically inert, capable of withstanding severe thermal shock and impervious to moisture. Ground to close tolerance finish to give maximum contact with wire element for rapid heat transfer.

Resistance Element: High quality nickel-chrome or nickel-copper alloy depending on resistance value; wound at minimum tension.

End Caps: Formed to close tolerances from a special nickel-iron alloy chosen for its consistent welding properties and glass sealing characteristics.

Leads: Solder coated nickel A.

Uncoated leads can be supplied for welding.

Specify – 'weldable leads'.

Preformed and cropped leads can also be supplied on request.

Coating: Humidity proof vitreous enamel with carefully controlled expansion matched to the materials of the resistor.

TABLE 1

C.G.S.				BS 9114 - N002							STYLE CROSS REFERENCE		
Style	Maximum wattage rating @ 20°C	Resistance Range Ω		BS 9114 - N002 Style	Maximum wattage rating @ 70°C	Approved Resistance Range Ω		Critical Resistance Ω	Limiting Element Voltage. Volts		DEF. 5111-1 Style	DEF 5115-2 Style	G.P.O. Style
		min.	max.			min.	max.		Normal	Low Air Pressure			
C3A	3	0.1	10K	2E-56-2.5	2.5	1	4.7K	3.9K	100	70	RWV3J	RFH3-2.5	P.O.35
C7	7	0.1	27K	2E-56-6	6	1	15K	6.8K	200	140	RWV4J	RFH3-6	P.O.40
C10	10	0.1	68K	2E-56-9	9	1	68K	27K	500	350	RWV4K	RFH3-9	P.O.36
C14	14	0.2	120K	2E-56-12	12	1	100K	47K	750	530	RWV4L	RFH3-12	–

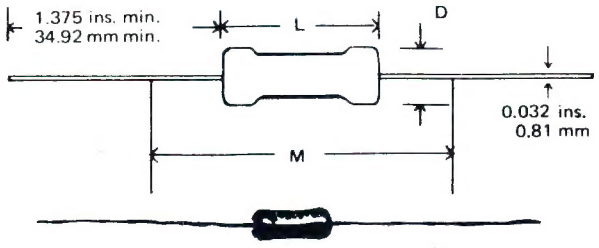

TABLE 2

Style	Length L		Diam. D		Measuring Distance M		Approx. Weight
	max. in.	max. mm.	max. in.	max. mm.	±0.062 in.	±1.59 mm.	grammes
C3A	.499	12.7	0.220	5.6	1.250	31.8	1.0
C7	.874	22.2	0.315	8.0	1.625	41.3	2.0
C10	1.499	38.1	0.315	8.0	2.250	57.2	3.5
C14	2.106	53.5	0.315	8.0	2.875	73.0	5.0

Note: M = resistance measuring points distance – below 10Ω only.

amateur radio

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FRONT COVER:
A typical example of the fine engineering of an early transmitter built by VK2AMI in 1920 and presented to the Queensland Museum.
Photo supplied by G. M. Hull, VK3ZS

QSP

What's in it for me?

A familiar Australian expression—one which is often heard in reference to our Institute.

What is there in the WIA for you and me?—two members of the oldest organisation of its kind in the entire world of Amateur Radio!

Chances are that I don't know you and you don't know me yet, but my sincere hope is that, through QSP, we'll get to know each other pretty well.

Although we've never met, there are, when you think about it, many things we do know about each other.

First and foremost, we're both interested in Amateur radio as a hobby or pastime; probably for vastly different reasons, but are bound by the common interest of Amateurs the world around--the desire to communicate--That we know.

Whether you are a DX man, or VHFer, a ragchewer, a newcomer, an antenna experimenter or whatever, there is always something I can learn from you.

Some new wrinkle or some benefit from your experience in communicating is readily available and willingly given—should you be asked—I know, because that's the nature of our "game" and in 28 years af amateur radio I've never been disappointed.

We're both members of the WIA, otherwise you probably wouldn't be reading this Magazine!

Now, what's in the WIA for you and me?

That's something I'm working on—the job of letting you know what's in it for us—not just you and me but the *us* represented by our entire membership and the *us* who are amateurs but do not belong to the WIA.

The Executive of the Institute has given me the task of keeping you informed about the things which the Institute does in your name—representing the Amateur Service—and about which you have a right and a need to know.

The Executive feels that, for too long, there has been a communication gap between them and you, the member.

So, every month some topic or topics will be the subject of this page to keep you in touch with Institute affairs.

Meeting each month, Executive handles all sorts of problems which are of great importance to us all in maintaining the privileges of the Amateur Service.

For example, during the two most recent Executive Meetings, considerable complex discussions took place concerning:—negotiations with the Australian Post Office on frequency allocations; the matter of reciprocal licencing arrangements with other Administrations; the formation of the VK1 Division; use of the 11 metre band, and the planned Extraordinary Convention on Repeaters.

You will hear more of these in future editions—particularly the Extraordinary Convention scheduled for September 15, which will be fully reported next month.

Executive has re-arranged its calendar, thus allowing their deliberations and actions to be available to AR within days of the meeting.

Therefore, what you see in QSP in future should be an accurate and up-to-date statement of activities at the Federal level.

Believe me, there is a GREAT DEAL in the WIA for both of us, no matter what our particular interest in radio may be.

JOHN McL. BENNETT, VK3ZA

A.R. AWARDS

The Publications Committee now have three awards available for contributions to A.R. There are the existing Higginbotham Award, and Technical Award; and to these has been added the Al Shawsmith Journalistic Award (ASJA) which carries with it a handsome plaque and a monetary token.

ASJA takes into account clarity of expression, conciseness, logicality, grammar and spelling, full and sufficient treatment of the subject matter, as well as originality and readability adjudged likely to be the best to enhance the image of amateur radio as an activity and to promote interest in it.

Although preference would normally be given to articles of a technical nature this does not exclude other articles, especially humorous articles, on a subject of amateur radio interest. Copies of articles in other publications would of course be excluded.

The Committee would like to thank Al Shawsmith, VK4SS, for his kindness and interest in putting forward the various suggestions which led up to the creation of this award.

TRANSCEIVERS — IMPORT DUTIES

Continuing the AR Special article in the July issue, Customs By-Law determinations have now been seen, or are known to have been issued, for Yaesu transceivers Models FT101, FT200, FTDX401 and FT501. Applications have been rejected however for any separate power supply unit for models without built-in supplies. One amateur received his approval only five days after sending in his application. Another amateur plans to buy his transceiver in Singapore but because of double freights, exchanges and profit (quite apart from whether or not any such amateur equipment might be available 'off the shelf' in Singapore) he might find it just as reasonable to try the Australian import market first.

STOP PRESS AX Prefix

The AX Prefix may be used by all VK amateurs (except TPNG) from 1-10-73 to 31-12-73 ,to mark HM Queens Visit

PMG letter RB 4–8–1 of 23 Aug 73

11 METRE BAND

The amateur allocation on the 27MHZ band is 26960 , 27230 kHZ — i.e. 270 kHZ. This allocation applies for amateur use in Australia, New Zealand and Region 2, but of course in the last-mentioned it is given over in part in the U.S.A. to the Citizens Band. It is thus easy to note why commercially manufactured amateur equipment seldom includes this band allocation. However, the band is designated for industrial, scientific and medical purposes. Other users must therefore accept any harmful interference from ISM. Radio Control (model aircraft etc.) occupies the band 26957 to 27282 kHz — i.e. 325 kHz, 27120 kHz ISM, 27240 and 27270 kHz for portable hand-phone equipment and 26978 and 27212 kHz for radio paging systems. All these are part of the general allocation for Fixed and Mobile, except aeronautical mobile, extending from 26100 to 27500 kHz.

REPEATER IN U.K.

The first repeater in G-land was commissioned on September 14, 1972 with the callsign GB3PI operating with a max. dc input of 150w transmitting on 145.75MHZ receiving on 145.15MHZ and licensed for one year experimental use. A progress report in Radio Communication for June 1973 asks "where do we go after the GB3PI experiment? Do we apply for licences for one or two more repeaters in other areas? Do we try a vhf repeater? Do we want repeaters at all?"

improving loudspeaker reproduction for SSB dx

Bruce Mann, VK3BM
9 Connell Street, Swan Hill, 3585

How often have you reported that the other station would be perfectly readable if he was not buried in the static? Perhaps something can be done about it after all, rather than giving up in disgust!

The range of frequencies required for good speech intelligibility is 300 - 2200 Hz but most loudspeakers have a natural cone resonance between 50 Hz and 120 Hz. In fact a very marked resonance. You can test this by holding the speaker near your ear and tapping the cone with a finger — a bass note will be heard.

At this frequency the cone will tend to vibrate freely with any noise pulse — electrical, static, etc.

Instead of a single oscillation, when pulsed it tends to make a number of diminishing excursions.

The two methods employed in Hi-Fi to reduce this effect are (a) to load the voice coil electrically by correct matching to a low impedance circuit — i.e. by choice of driving tubes or transistors and transformer, and use of a speaker with a strong magnet. (b) to load the cone acoustically by use of a baffle or enclosure.

But in voice reproduction we do not need the bass frequencies — in fact they reduce intelligibility by masking the higher frequencies containing the consonants, which are of major importance in clear understandable speech. So why not insert a filter in the speaker leads to remove all frequencies below 300 Hz?

EXPERIMENTS

In a series of experiments I have come up with a simple filter, and a speaker enclosure which has worked wonders with "duck talk" on a noisy band. The intention was to improve reception for my faulty hearing (which falls off drastically above 1000 Hz) but visitors with normal hearing prefer the gadget switched in.

First I made a box to fit the speaker, using ¾" Particle Board. In my case, to fit a 6" speaker the box was 8" wide x 6" high x 4½" deep internally. It was lined with sound absorbent material — Tontine wadding in my case. The front, with a 4" dia. cut-out, was fastened by suitable screws, so that various available speakers could be tried.

Testing speakers without the filter it was observed that there was a marked difference between them. Those with the most powerful magnets seemed best. Just loosening the screws, thus producing a crack in the enclosure, very noticeably altered the tone and reduced the crispness of reproduction.

Then, referring to tables, a 2 stage filter was made to cut off below 300 Hz:- see fig. 1.

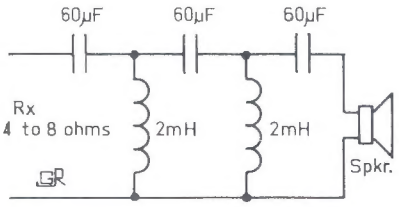
The capacitors should be bi-polar types as ordinary polarised electrolytics do not like a regular diet of A.C.!

The junk box R.F. chokes that I used were rather high in D.C. resistance so I found 2 stages an advantage, but probably a choke made for the job (such as the Rola SOL 36) would be sufficient with one stage.

RESULTS

Comparing by switching between the enclosed speaker and a similar speaker on a small flat baffle, there was a noticeable loss of volume with the enclosure but a marked improvement in clarity. Static became more of a sharp crack than a rumble, and similarly with other QRN. But switching in the filter made a further great improvement by removing the unnecessary bass and further loading the voice coil.

In conjunction with a receiver having sharp I.F. filters, adjustable passband tuning, and a good notch filter, it's wonderful what it will pull out of a crowded "staticy" 40 or 80 metre band. ●



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- send it **now** to:— P.O. Box 2611W, Melbourne, 3001.

mobile linear amplifier for the FT75 transceiver

— Cyril Walker, G3AZT

Reprinted from Mobile News, January, 1973

The popular QQE06-40 twin tetrode, beloved of the VHF fraternity, also has very suitable characteristics for use on the HF bands. Although reference is made in this article to some components of U.K. manufacture there should be little difficulty in obtaining equivalent items in Australia.

GENERAL DESCRIPTION

The amplifier with invertor power supply is built into a 9 x 5 x 5 inch "Electrokit" box. Using the FT-75, which was reviewed recently, as a driver, a peak power of 200 watts can be achieved with this linear. A passive grid configuration was found to be the most satisfactory, using a QQV06-40A tube.

The more usual "sweep tube" amplifiers as used in most American and Japanese equipment were rejected on account of their high heater consumption. Although with the amplifier switched on, three tubes are in use — the 12BY7 and 12DQ6B in the FT-75 plus the QQV06-40A — compared with only two in the FT-101, table 1 shows that it is more economical on overall battery drain and has the great advantage that the linear can be switched off when listening. Probably 75% of my time is spent listening.

This set-up has been compared with the FT-101, and measurements of battery drain and field strength using a common antenna indicate slightly better transmitter performance.

Equipment	Current Consumption — Amperes		
	Receive	Transmit	
		No. speech	Average speech	Peak speech
FT-150	4	3,5	10	13
FT-101	5	9	17	22
FT-75 + Amp.	5	11	17	28

Table 1: Comparison of Battery Current Consumption.

POWER SUPPLY

I obtained an invertor supply — ex Pye equipment — from Messrs. Garex Ltd. of Chinnor, Oxfordshire, and this fits conveniently into the back of the "Electrokit" box. Both of the high voltage supplies were changed to voltage doublers by disconnecting two of the rectifiers in each bridge and wiring one of each of them in series with the remaining rectifiers.

Two 16 uF 450 volt electrolytics are used in the high voltage circuit and two 8 uF 350 volt ones in the lower voltage, screen supply. A test was made on the higher voltage rail on resistive load and at 14 volts input, 870 volts at 250 mA was obtained.

The screen supply, of the order of 400 volts, is dropped to 300 volts by a feed resistor with two, series connected, 150 volt, zener diodes across the screen to ground. The 25-30 volts grid bias voltage is obtained by removing some of the resistors and replacing them with a potentiometer.

AMPLIFIER CIRCUITRY

The amplifier circuit is conventional but a few practical details are of interest. Band change is effected by a two wafer, two pole, five way ceramic rotary switch, S1. All p.a. antenna loading capacitors are Suflex, polystyrene types rated at 500 volts d.c. working and have so far proved quite satisfactory. The table 2 gives the p.a. tank circuit parameters for each band. The fixed tuning capacitors must be high voltage mica or ceramic types.

Band MHz	C1 pF	C2 pF	L1 uH
3.5	310	1600	7.5
7.05	135	880	4.0
14.2	76	450	2.1
21.3	52	290	1.4
28.6	38	220	1.0

Table 2: P.A. Tank Circuit Parameters

N.B.: Subtract half the capacitance swing of the tuning and loading capacitors from C1 and C2 respectively.

The p.a. tank coil for the 7-28 MHz bands is wound on a 1¼ inch, grooved ceramic former and it was easy to solder on the required taps. The additional 3.5 uH for the 3.5 MHz band consists of a separate coil of thick enamelled wire, soldered to the end of the grooved coil.

The power supply relay, RL1, which is operated from the FT-75 relay output socket, is a silver contact, heavy duty component from Pye equipment, by Magnetic Devices, whilst the antenna change-over, RL2, is a surplus, two pole device, with normal contacts, but ceramic insulation.

All controls are on the front panel with power supply and r.f. output sockets at the rear. The circuit diagrams of the amplifier and power supply are shown in figures 1 and 2 respectively and the physical layout in figure 3.

This amplifier has operated very satisfactorily on the parcel shelf of my Triumph "Dolomite" for several months, enabling me to compete with the FT-101 boys whilst retaining the compact saloon car I want. ●

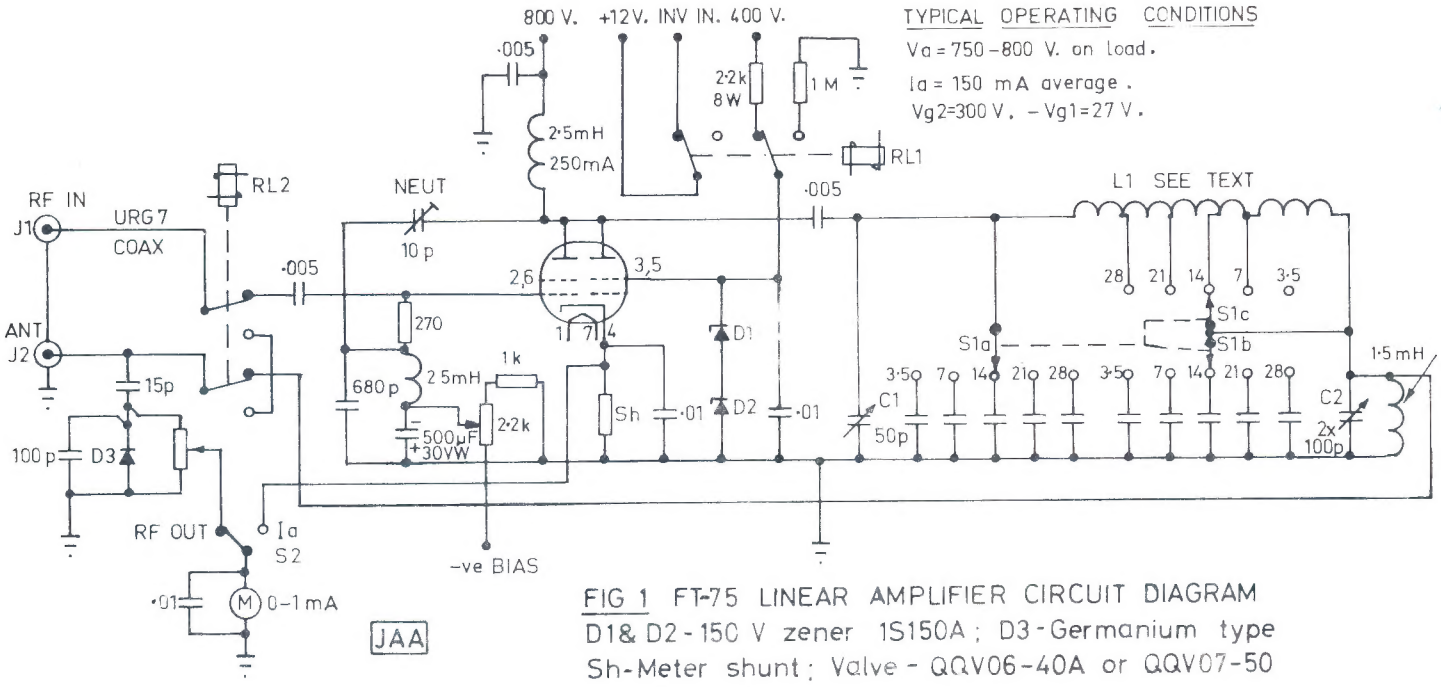


FIG 1 FT-75 LINEAR AMPLIFIER CIRCUIT DIAGRAM
D1 & D2 - 150 V zener 1S150A; D3 - Germanium type
Sh - Meter shunt; Valve - QQV06-40A or QQV07-50

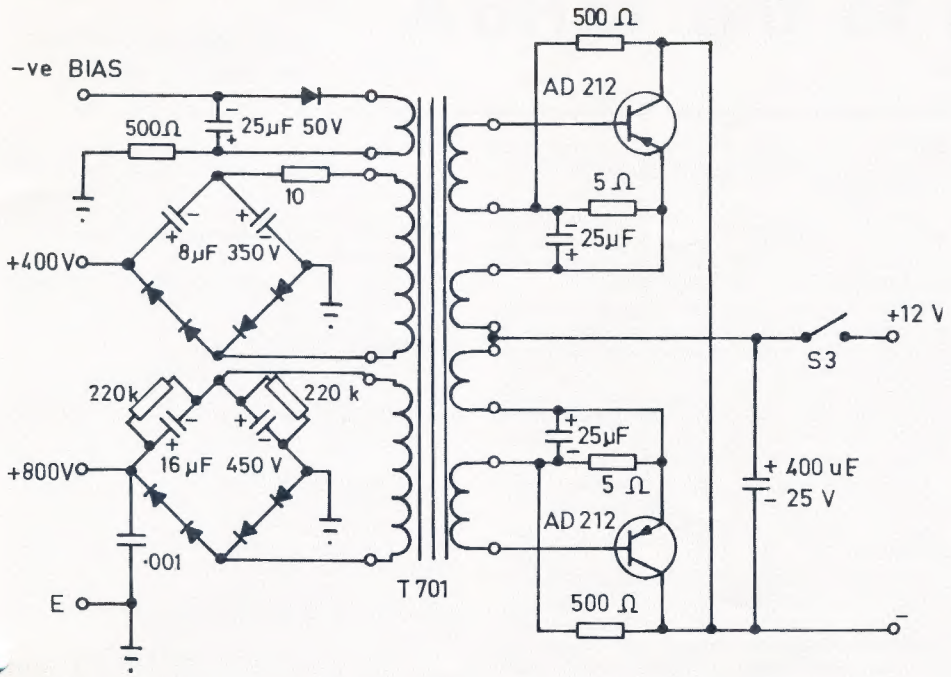
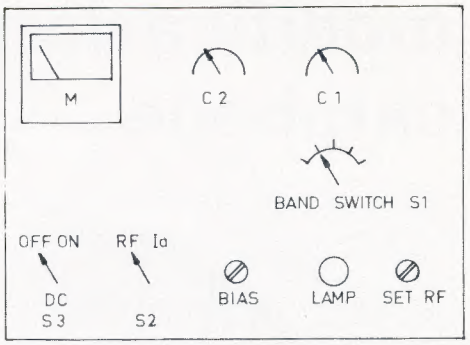
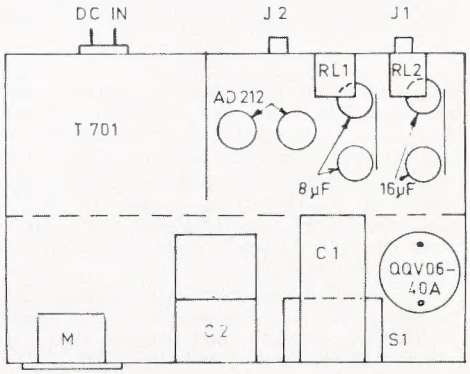


FIG 2 MODIFIED PYE POWER UNIT

NOTE. If T701 or complete unit cannot be obtained use design in "Radio Communication" Sept 1972 pp 576-7



FRONT PANEL



PLAN

FIG 3 FT75 LINEAR AMPLIFIER

Heathkit 2 Metre FM Equipment

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- Easy to Assemble
- Fully Illustrated Assembly Manuals
- Professional Finish
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modifications to the MR6A carphone

Steve Gregory, VK3ZAZ
Bob Bennell, VK3ZAC
"Lynmere", Learmonth, 3352

It appears there has been a sudden influx of the multi-channel AWA Car Phones on to disposals markets over recent months. For those who have obtained one of these units here are some notes and information on improvements to existing circuitry, and modifications to upgrade the efficiency of the unit.

Bob, VK3ZAC, has spent 6 years in the commercial servicing field and once fostered over 100 of these mobile units as part of his service responsibilities.

The basic MR6A should realize 10 to 13 watts with 1 to 2 mA grid drive to the QQE03/12. Only the exceptional units with the "right" valve combination seem to be capable of the higher power output.

The first modification attempted to the transmitting section was the second doubler stage V20 which normally used a 6C4. This was changed to a 6AK6 pentode.

An important point to remember whenever any valve substitute is contemplated in these units is the filament configuration to enable the set to operate on either 6 or 12 volts, positive or negative earth.

The filament current of any substitute valve should match the one removed otherwise the balance will be upset, resulting in a deficiency of voltage on one rail and too much on the other.

The 6AK6 power output pentode draws .15 amps at 6.3 volts which is identical with the 6C4.

A quick consultation of the valve data book shows few modifications to valve connections are needed to make the change.

The grid lead from TR10 is shifted from Pin 6 to Pin 1. Grid 3 of the 6AK6 is connected to the cathode by bridging Pin 2 and Pin 7.

The centre post in these units is used as a HT busbar, so do not bridge to earth by accident, or deliberation!

The anode connection remains the same, as do the filaments; however Pin 6, vacated by the grid lead, is now by-passed by a .001 uf disc ceramic and fed from the HT busbar via a 4.7K ½ watt resistor.

The high voltage current is up by some 8.5 mA and a substantial increase in drive can be realized by connecting the anode circuit to the same 400 volt rail as the QQE03/12.

In this way the multiplier stage is keyed up along with the final. The anode coil may need 1 or 2 pF across it for resonance. This is due to the lower internal capacitance of the pentode. Drive will be somewhere between 2.4 to 3.8 mA, with 2.6 mA being the figure when connected to the 200 volt rail only. Power output should be around 15 watts.

The second stage of modification would be a distinct advantage for mobile operations or country repeater operation, and will cost around $10.00.

It involves replacement of the final tube with a YL1240, and the driver with a 12BY7A.

The first question raised was current consumption. Would the power supply carry the increased drain from the higher power tubes? From tests on the final product we have seen that no ratings are exceeded and there is no appreciable difference between the running rail voltages in either the modified or unmodified condition.

The YL1240 is a bigger brother of the QQE03/12 and for similar drive input will give up to 30 watts output.

The large 9 pin socket is available locally and 10 minutes work will see the 9 pin ceramic socket evicted, the hole enlarged, and the new socket soldered or screwed into place. Pin 5 of the new socket points toward the first tank enclosure.

All the components and leads removed from the 3/12 socket are reconnected to the appropriate pins on the YL1240 socket. The connections are identical except that the socket is longer. A trial was given to a modified grid input circuit. Normally a 10K resistor is connected to each grid. The coil TR13 was centre tapped and fed from bias through a 1.3 µH RFC and a 6.8K ohm resistor. Bias was identical when retuned.

Next step is the removal of all components and leads from the 6C4 socket, its eviction, and enlargement of the hole to take the old 3/12 socket (if in good condition), or a new ceramic 9 pin socket.

The choosing of a tube to drive the final is open for discussion at this point. The 6AK6 could possibly drive the new final to full output without modification, but we found that it loaded the circuit too much, resulting in inadequate drive.

The 12BY7A is a sensitive pentode and gives good output when used as a doubler in this circuit. Current consumption is in the order of 25 mA plate, and 6 mA screen.

The 5763 draws 50mA plate and 6mA screen. The 7551 draws 80mA plate and 5.1mA screen when used in similar conditions.

Another point is that the facility of 12 volt filaments in the 12BY7 allows use of the 12 volt rail for a supply source. However, when the 6C4 is removed from the upper rail, 150mA drain is removed, thereby causing unbalance. V15 (a 6BH6) is elevated to the upper line adding 150mA consumption; LP1 (the pilot lamp) is connected to the lower rail and replaced by a 12 volt 1.5 watt version drawing 100 mA.

The additive currents for both rails now equal at .60 Amp each. The 12BY7 draws .30 Amp up across the 12 volt rail and the YL1240 draws .38Amp.

With filaments now in balance, components for the second doubler stage are selected for best performance.

TR10 (the 2nd tripler stage output) would not tune due to increased capacity, so a new approach was chosen where the transformer was modified to a single wound coil, and capacitive resistive coupling was applied to the 12BY7.

A 100K grid leak was found to be too high and a 68K realized optimum drive. As with the previous modification when a 6AK6 was substituted, the screen grid is taken from the keyed HT rail via a 4.7K and .001 decoupler.

The anode circuit is fed from the HT rail via RFC and .001 decoupler.

The rewound coil on the TR10 former was 8 turns of 18 gauge enamelled copper with a 5pF ceramic across the former; the coil resonates at 73MHz with the tuning slug.

HT feed through TR10 to the 6C4 is via a 1.3 µH RFC amd .001 decoupler. To resonate the output stage of the 12BY7, a 3.9 pF was placed across the TR11 coil. By experiment the optimum output against drive was found to be when 6.8K ohm was used and 3.3mA of grid drive obtained. The previous standing bias is retained to all the stages in the driver section and no modification was needed to the final tank circuit.

The PA draws 100mA and, under bench conditions at 13.5 volts, delivers 25 watts output.

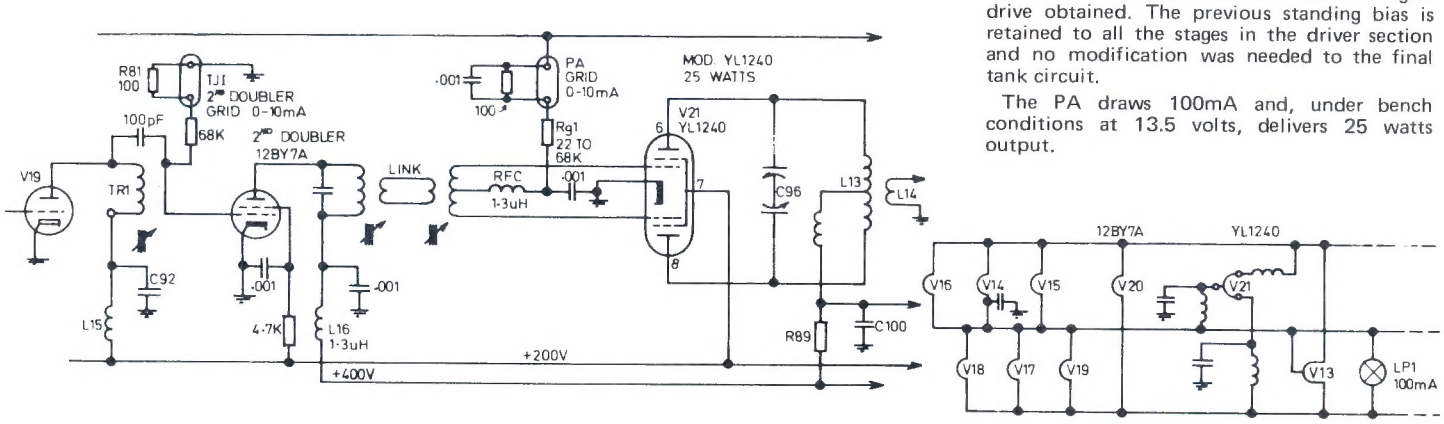


FIG. 1 MODIFICATIONS TO MR6A CARPHONE.

TABLE

Second Tripler: 6C4	Second Doubler: 6C4	P.A. 3/12
drive 0.5 mA	drive 0.75 mA	drive 2.0 mA Power output 12 watts
6C4	**12BY7**	**YL1240**
drive 0.5 mA	drive 0.82 mA	drive 3.3 mA Power output 25 watts
6AK6	**12BY7A**	**YL1240**
drive 0.65 mA	drive 1.5 mA	drive 4.0 mA Power output 31 watts

The figures above show the increased performance obtained and includes figures for the optional 6C4 VS. 6AK6 as the 2nd tripler, which we have not reported on, but which gives the last little bit of performance available from the system. The modification is not essential and is only listed for reference. On the second tripler socket, as with the stage 1 doubler modification, Pin 6 is changed to Pin 1 which is the grid connection; Pin 2 is connected to Pin 7 and earth; Pin 6 is fed from the keyed 200 volt rail via a 4.7K ohm and .001 decoupler.

After retuning the PA coil and grid input the extra drive conditions will be realized.

Modification to Microphone.

There are two ways to achieve rocking armature operation. One is the direct substitute of the transistor pre-amp unit designed by the manufacturers as a replacement for the carbon insert. The other is the replacement of the 12AU7 with a 12AT7 and removal of the Input Transformer. Then connect the rocking armature in place of the transformer secondary.

Modifications to the Muting Circuit.

These were made to improve the time constant and audio frequency response. Instead of referring to substitution, we print the new circuitry (Fig.2) and leave the techniques of placement of the new components and replacement of the old to the discretion of the constructor.

Modification to the Front End.

This simply involves the replacement of V2, the second Mixer, with a type 6CY5. The noise figure of this tetrode is substantially lower than the pentode it replaces. Retuning is necessary and, although the book states an increase in filament current, 175A to 200A, the unbalance benefits the transmitter line, and volts are 6.1 against 6.4 for a 13.5 volt rail instead of a 6.25 balance. Inclusion of a small resistor on the lower rail will rebalance the lines.

Modification to the Power Supply.

To reduce the rise time of the switching transistors, and consequently the dissipation, the 2 feedback resistors R103 and R104 are increased from 330 Ohm to 560 Ohm, 1 watt, and across R98 and R101 are connected two back-to-back electrolytics. The values are 20 microfarad and the positives or negatives are connected together, creating a miniature 10 microfarad non polar capacitor.

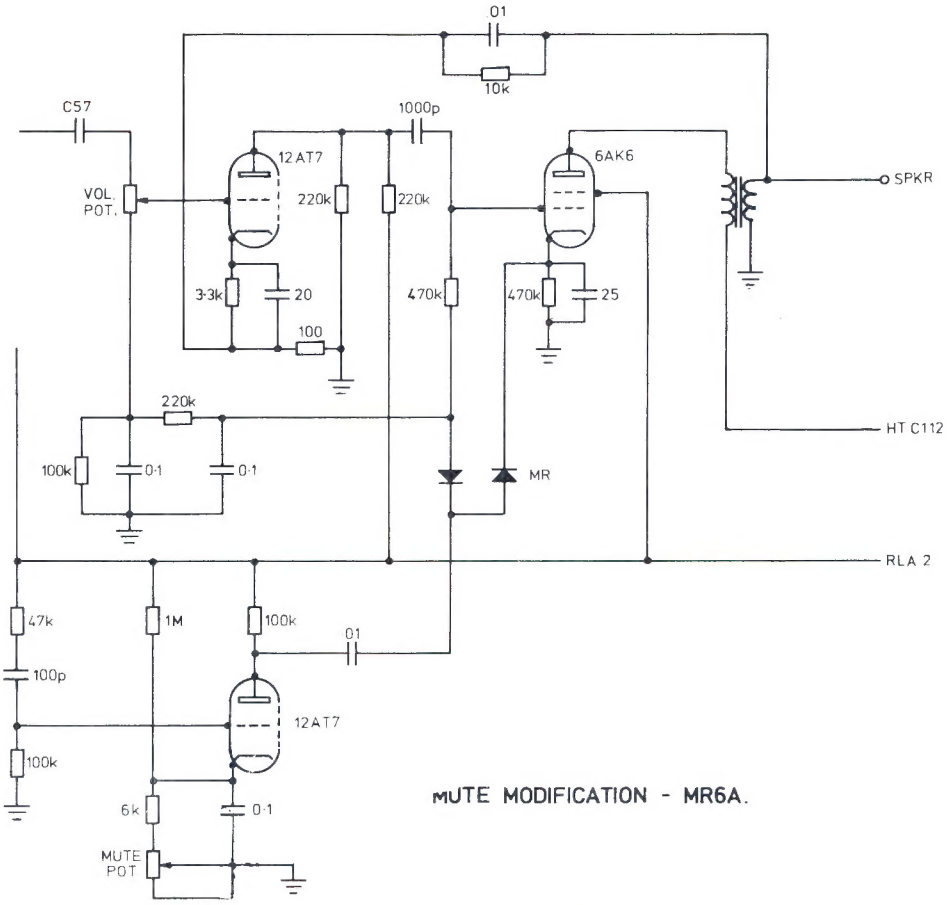
In the voltage tripler section, C112 is supplemented by an additional 24 microfarad electrolytic 450 VDCW, 600VDCS.

In our rig we also changed the two doubler electrolytics, substituting 33 microfarad 450VDCW for the existing 24 microfarad values of C108 and C109.

Conclusions

This is definitely a project for those with time on their hands; but results in an improved nice-to-listen-to rig, well behaved, and with that little extra "oomph" for the marginal contact or armchair copy across town.

Those who have heard the rig used by VK3 ZAZ mobile in country areas will probably verify that it is easy to copy and as good as any others heard. No claims to fame are made other than this, and we hope to hear some results from those who desire that little extra, without going "you know what."



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Thinking of going to Europe on holiday or maybe on business-cum-pleasure? David Verity of Whitehouse Public Relations, 67 Christie St., St. Leonards, N.S.W., 2065, ph. (02) 439 2611, sends along some details of holidays in Europe with DX at your fingertips. Perhaps not so many people will know about the pleasures of pottering around Europe in a caravan or motor caravan, tent or what have you. Beware however of going on a tour in summertime, especially June to September, without advance reservations. This applies also to camping sites which get very very crowded at that time of the year. Remember also there is not too much outback in Europe for ad hoc camping or overnight caravan halts.

The Club Radio Stations listed in this article most certainly are located in the very heart of Europe. More than sufficient historical places close by and such scenery as can only be described as beautiful — so long as the WX does not intervene. Literally thousands of VK's and ZL's can be found ambling round Europe. Many take advantage of the 'off-season' period March to May — the spring — when the weather can be temperamental particularly in the more northern parts of Europe, but how beautiful it can be when the sun shines. Apart from the places mentioned, do not forget to include a visit to 4U1ITU in Geneva if you can. The DX-tour might perhaps be more fun for a full licensee as opposed to the limited operator.

EUROPEAN HOLIDAYS FOR AMATEURS

A group of active Radio Amateurs from four different countries recently launched a new venture called TOPTOUR HAM CLUB.

The club plans to offer all licensed amateurs the opportunity to enjoy their hobby during their holidays.

Many countries already have reciprocal agreements which permit foreign amateurs to obtain vacation licenses in the host country. The Club is in a position to secure such vacation licenses or assist in procuring such documents.

In order to assist the amateurs in their amateur activities the Club has established facilities in a number of holiday centres in Europe. All club Stations have been placed in first class hotels.

At this time there are Club stations operating in SWITZERLAND, GERMANY, LIECHTENSTEIN, PORTUGAL and AUSTRIA.

Moreover, the club can make available VW-Campers with mobile amateur station built-in.

Any licensed amateur from Australia is eligible for guest membership.

Toptour Ham Club has close relations with SWISSAIR and several well-known Travel Agencies. As a result it can provide the vacationing amateurs "tailor made" holidays at the lowest prices.

TOURIST PROGRAMS

The travel program can be arranged according to the needs of the vacationing amateur and his family. Rates are based on a minimum stay of 7 days at each Club Centre (minimum in Portugal, 14 days). It is also possible to provide for interruption in the program to allow the amateur to use part of the time for business purposes. Places other than the listed Ham Club Centres may also be visited and included in the program.

ACCOMMODATION & MEALS

All rates quoted are based on rooms with double occupancy, with or without bath, in selected hotels or in a Club House. The rates at most destinations include 2 meals (continental breakfast, plus either lunch or dinner), and Toptour Ham Club will undertake to secure the vacation amateurs licenses and assist in making the necessary application. The vacationing amateur will get his own licenses and call letters for each country to be visited. Any fees for these are included in the overall prices quoted.

However, it is understood that due to the considerable time needed to obtain licenses and call signs for the vacationing amateurs, a complete questionnaire, and photostat or Xerox copy of the home license (for Portugal the original, which will be returned) need to be completed and sent at the time of booking but not less than 2 months in advance of departure (for Portugal 3 months).

THE VW — CAMPER

A comfortable vacation home on wheels, the camper provides room for 3 grown-ups and 1 child. Radio equipment consists of an FT 101 (Sommerkamp 277) for 5 bands, CW and SSB with 240 Watt PEP input, a Drake W-4 HF Wattmeter, an electronic key (ETM2). A dynamic mike is also provided. There are two loudspeakers: One in the living area, the other above the driver's seat, built into the roof.

The antenna is a roof-mounted HUSTLER mobile antenna. The station can be switched to AC current for stationary operation on camp grounds.

All the station gear is conveniently arranged on a modern desk. The YAESU FT DX 400 is mounted on top of a speaker console. The entire 5-bank 80- 10m rig, operates on CW, SSB and AM with a full 500 Watts PEP input. A DRAKE W-4 WATTMETER allows the continuous checking of the HF output, as well as the Monitoring of the SWR. There is also a high-level output DYNAMIC DESK STAND MIKE with touch control bar for easy PTT operation, and for the CW man a modern ELECTRONIC KEYER ETM-3 also permitting squeeze-keying.

Additional conveniences afforded are: A DIGITAL CLOCK, a HIGH INTENSITY READING LAMP and a set of HIGH QUALITY EARPHONES. The small SWITCH PANEL BUILT INTO THE DECK, HOUSES THE MAIN SWITCH for the station with a SAFETY LOCK AND KEY, as well as a CO-AX SWITCH for the antennas and the 50 Ohm DUMMY LOAD.

Depending upon the location of the individual Club Stations one or two of the following antennas are used: — FB 53 JUMBO BEAM with 5 elements on 10-15m and 3 elements on 20m, driven by a HAM-M ROTOR and activated through its well known control box.

— FD 4 WINDOM ANTENNA with a coax-feeding for 4 bands, generally used for 40-80m.

The entire station is laid out with comfort and convenience in mind.

Sub-tropical is the only way to describe the Swiss city of Lugano, the southernmost city in the country. Located south of the Alps, dipping deep into Italy this Top Tour location offers the best of Swiss and Italian hospitality.

Overlooking Bregenz, Austria, the new Top Tour QTH for this area is the Berghof Fluh perched on a mountainside overlooking Lake Constance.

THE STATIONS

HB9: Bad Ragaz — (Club Radio Station No. 1)

BAD RAGAZ is world famous for its mineral springs. It is a health spa of the first order with Thermal baths and the best medical facilities. The town has numerous attractive parks, endless possibilities for vacationers who like sports of any kind. Golf (18 holes) mini-golf, horse-back riding, swimming, fishing, flying and soaring, skiing and mountain climbing.

HOTEL CRISTAL CH — 7310 BAD RAGAZ

This is a new Hotel with its own enclosed swimming pool, sauna (Swedish steam bath), large restaurant, large lobby, bar and reserved Club Room with Radio Station.

Other world famous tourist centres can be reached by train or car in a relatively short time. St. Moritz, Pontresina, Davos, Klosters and Arosa.

HB9 QTH: ZWEISIMMEN

Surrounded by Pre-Alpine meadows, forests and mountains, this is an ideal spot for recreation, rest and summer and winter sports. There is a new heated swimming pool, tennis courts and mini-golf courses, beautiful fishing streams, and an enclosed gondola-type chair lift to the top of famous Rinderberg

(6,200 ft.), trains and a ski school.

QTH — HOTEL KRONE CH-3770 ZWEISIMMEN

The Hotel is modern, centrally located, yet quiet. Sunny meeting rooms, bar, banquet room, beautiful garden open to guests, garages, orchestra and reserved Club Room with Radio Station.

HB9: QTH: LUGANO

In the southernmost part of Switzerland, Lugano is near the Italian border, with mild climate. It is one of the loveliest spots in Europe and offers the tourist every facility.

QTH — KINGS HOTEL CH-6900 LUGANO

This is a modern "skyscraper" with large restaurant, meeting rooms, bar, garage in the basement and reserved Club Room with Radio Station.

Excursions — By car or train to Locarno, Ascona and the Italian cities of Milano, Como and Varesse. Sight-seeing trips by boat to a number of quaint and interesting places along the shores of the lake.

HBQ — QTH: GAMPRIN, LIECHTENSTEIN

Tiny Liechtenstein is a separate and independent country, which is ruled by Duke Franz Josef II. It is situated in the Rhine Valley between Switzerland and Austria and is only about 17 miles long and 5 miles wide.

Gamprin is a small village on a hill in the middle of the Rhine Valley, about 7 miles from the Capital, VADUZ. This is an ideal spot for DX men.

QTH — FORSTHAUS VALEPR — SPITZINGSEE, GERMANY

A historic Inn, surrounded by woods in the Bavarian Mountains, close to the border of the Tyrol. It features a rustic atmosphere, large, friendly rooms with pine-panelled walls.

The Radio Shack here features a COLLINS 75 S-3 plus LINEAR with 3KW input, a Beam and Vertical Antenna.

QE9 — QTH: BREGENZ, AUSTRIA

The picturesque town of BREGENZ is situated at the east end of Lake Constance, where the Rhine River flows into the Lake at the point where the three countries Austria, Germany and Switzerland meet.

A variety of entertainment is available to the tourist, mini-golf, boating and water-skiing, sailing and fishing.

QTH — HOTEL BERGHOF — BREGENZ, AUSTRIA

This modern Motor Inn is located on a hill overlooking the town of Bregenz. Its view of the Austrian, German and Swiss mountains is truly unique and awe-inspiring. It is a new Inn with an excellent restaurant, a huge terrace, Tap Room, Bar-In-The-Rocks. Reserved Club Room with Radio Station. Rooms, modern with bath, phone and balcony.

The Radio Shack features Beam and Rotor; also a separate antenna for the lower bands.

CTI — QTH: ARMACAO DE PERA, PORTUGAL

Armacao de Pera is situated on the southern coast of Portugal in the Province of Algarve, about 30 miles west of the airport of FARO.

QTH — TOPTOUR CLUB HOUSE, PORTUGAL

The Club House is located on the beach and contains 4 double rooms and 1 single room. The large radio shack is enclosed and has a 5 element Beam and Ground Plane Antenna. ●

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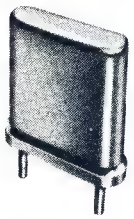

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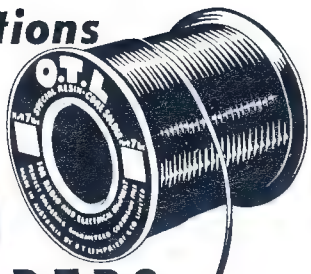

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audio rectification hints

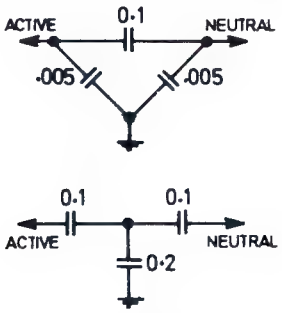
R. S. Gurr, VK5RG

Reprinted from VK5 Journal, January, 1972

Just like Channel O interference, when amateurs get into audio frequency amplifiers, nothing can be done at the amateur rig to cure the problem. A passing taxi or a nearby two-way service could cause the same problem, but it is usually the amateur that gets the neighbors' wrath. If affairs are friendly, and you haven't been abused, and you feel you would like to help the guy, perhaps only for the technical exercise, here are a few hints on possible cures.

POWER LEADS

Once believed to be the main source of R.F. input to audio-stereo systems. With valves, it was, but in this day of solid state, very likely no problem. An Aegis MF2A line filter can resolve some cases and will reduce audio plops and clicks — a simple backyard line filter can be improvised by twining the excess cord through a circular ferrite, perhaps an old TV deflection yoke core. A 10' length of 3 x 23/.0076 flex thus entwined with loose plugs and sockets can be used for the chokes of an experimental line filter. To accompany these, some "jumbo" type double adaptors with the following condenser combinations should be made.



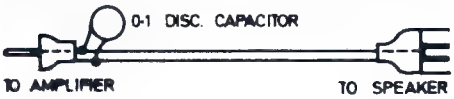
An experimental lash-up should give you a lead to the best type of filter. In extreme cases the above capacitor combinations wired direct to the power transformer may be necessary. Often a direct earth from the radio chassis to the ground is all that is required — this could apply especially to some imported equipment where the manufacturer has ceased to include electrostatic shields in power transformers.

OUTPUT LEADS

Although we would be led to believe that the speaker leads on modern hi-fi combinations are shielded wire, a survey reveals this is only so in a few cases. Long open speaker leads are good aerials, and will conduct RF back into the sensitive preamplifier circuits, where it is rectified and amplified.

Most commercial units use either screw-on or RCA type connectors — some have been found using 3.5 mm plugs and standard headphones type plugs for this purpose. With screw-on connectors, a 0.1uF polyester or ceramic capacitor direct across all speaker output terminals, at the connector strip, will stop speaker lead pickup in most cases. A useful item to help try this same cure on sets using RCA or other jacks is to have a couple of adapters already made up, so that they may be plugged in series with the loudspeaker leads.

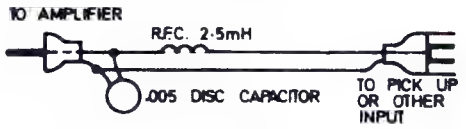
NEVER do this switch-over with the set switched on — open circuits on output stages are still disastrous!



INPUT LEADS

With the use of transistors, the need for intimate shielding of all circuits is reduced, providing the hum field of the power transformer is made insignificant. As a consequence it is not unusual to find input leads from pickups that are not shielded. A 0.005 or so disc ceramic on a plug adaptor is useful if the input connections are removable. If they are not, it will be necessary to start bypassing at the first available point nearest the amplified input. The number of input combinations to be met are many. However, it will be necessary to bypass at least the input terminals on the PCB, if this cannot be done at the chassis input terminals on the PCB.

In extreme cases, changing the pickup leads to double screened wire will help, and may also give reduced hum from the motor field. Use a series RFC to the input elements, and 0.005 bypass capacitors are often used.



OVERALL EFFECTS

With input, output and power circuit pickup reduced to a minimum, the remaining RF pickup, if it still exists, is by direct receiver wiring and board pickup. You really are in for fun if you need to go to the extent of lifting components from a PCB to install series filters. If may be necessary, but try every means of shunt bypassing before you attempt this, as it is so easy to upset the bias conditions and so hard to fit the parts back in — even ferrite beads become difficult to fit sometimes.

Direct pickup by wiring is best tested back in the freedom of your own home shack/workshop. Most of the previous tests can be conducted in the owner's lounge room. A 27 MHz handphone, or a signal generator with a probe, or even a GDO with 50 Hz modulation, may be of assistance. The portable source as described above, should be moved about over the pre-amplifier section of the wiring and the areas where intensity of interference is great should be noted. This will be near unscreened volume control leads, and either bypassing of the next input element (0.001uF) or screening the leads, or both, will be necessary.

If it is proved that RF close to the board is being rectified, but it is hard to pick the exact element, cover the section with paper held down with masking tape and then screen the lot temporarily with "Alfoil". At your leisure you can then peel the metal away in parts and see which area is the most sensitive to its removal.

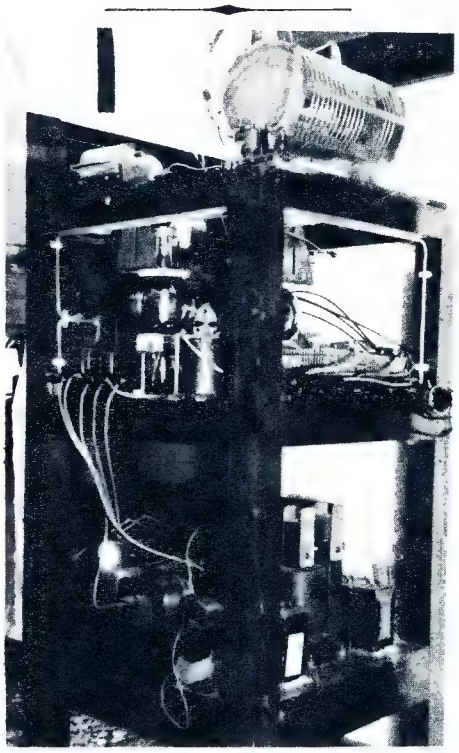
CONCLUSION

The above brief notes may be of assistance to anyone about to attempt the de-lousing of an audio TV-stereo-radiogram system, although they are necessarily incomplete. It is difficult to discuss the aspect of receiver-audio design with servicemen, manufacturers' representatives, and the manufacturers themselves. Apparently due to lack of legislation on receiver design standards, this aspect is continuously overlooked. Remember, however, the same trouble can be caused by any other AM or SSB transmitter that may be set up close to the amplifier in question, consequently the burden of cure should not necessarily be the amateurs.

If you have TV or audio appliances in your home that suffer no interference, your invitation to an irate neighbor and his uncomprehending technical advisor to visit and observe for themselves is a good way to start to improve relations. There is a "no man's land" existing in this area, and since usually the amateur is the only one involved who understands RF, perhaps if he got off his tail and offered his assistance early in the piece, rather than procrastinating on legal points, he would improve his public image.

REQUEST

The writer would welcome details of case histories, mainly technical, on methods of cure. I do not require any further information on the legal aspects, or how nasty some neighbors can be! ●



Station 2WI—the official station of the N.S.W. Section of the Wireless Institute of Australia in 1923. Many components for both amateur and commercial experimental stations were 'home-built' in these days and this illustration is typical of an experimental station of the time. It was built by a member of the Institute named James and installed at the residence of Mr. H. A. Stowe, 2CX, until 1925 when it was transferred to Mr. Basil Cook's residence. Basil Cook operated as XADW.

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MIDLAND model 13-894 5 Watt AM-SSB combination transceivers, 27 MHz all 23 channels crystals provided, 12 to 13.8 V DC operation, noise blanker, selectable sideband switch, clarifier, squelch control, S-Meter, mobile bracket, with P.T.T. microphone, containing 29 transistors, 3 FET's, one IC and 53 diodes, all for only $175

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One Watt hand-held standard 27-28 MHz walkie-talkies, two channels, model 13-700, each $40

One Watt de-luxe walkie-talkies, 27 28 MHz, three channels, battery-meter and extra sensitive receiver, $50 each

Crystals for various 27 MHz channels, also 28.1 to 28.5 MHz, per pair $3

SWR-Meters, 52 ohm impedance, single meter type, operates as a field-strength meter with included pick-up whip, ... $12

SWR-Meters, 52 ohm impedance, double meter type, reads forward and reflected powers simultaneously, $16

P.T.T. hand held dynamic 50 K ohm impedance **microphones,** sturdy metal case with coiled cord, $10

Large Selection of **HY-GAIN ANTENNAS**

14 AVQ vertical, no guys required, 10 to 40 M 18' tall	$45
18 AVT WB vertical, „ , 10 to 80 M 23' tall . .	$65
TH 3 JR 10 15 20 M. 3 el. junior Yagi beam 12' boom	$100
TH 3 Mk 3 10, 15, 20 m. 3 el. 1 KW Yagi beam 14' boom	$145
TH 6 DXX 10 15 20 M. 6 el. 1 KW Yagi beam 24' boom	$175
HY-QUAD 10 15 20 6 element Cubical Quad 8' boom, single feedline	$130
204-BA 20 M. 4 element 1 KW Yagi 26' boom	$155
BN-86 Hy-Gain balun, only for buyers of Yagi beams	$18
Baluns of local production, excellent finish	$15

CDR ANTENNA ROTATORS

AR 22 R	$40
HAM M senior	$130

Both with 230 V AC indicator-control units.

LARGE RANGE OF 144-148 MHz OPERATION EQUIPMENT

YAESU MUSEN FT 2 FB 144-148 MHz 10 Watt output FM transceivers, 12 channels with crystals provided for 6 channels, 144.48, 144.60, 145.000, 146,000 and Repeater Channels 1 and 4, 12V DC operation, with mobile bracket and P.T.T. microphone, the lot for only . . . ~~$225~~ $215

KEN PRODUCTS KP-202 144-148 MHz 2 Watt output hand held transceivers, with the hottest receiver of the lot, bar none, provision for 6 channels, crystals for 4 channels provided, 144 48, 144.60 plus a choice of channels A or B and Repeaters 1 or 4 . . . . . $150

Extra crystals . . . . . $8 per channel

BELCOM LINER 2 Solid State 144 MHz SSB transceivers, 10 Watt output, 12 V DC operation VXO coverage 144.000 to 144.240 and 144.240 to 144.480 MHz, with clarifier, noise blanker, squelch, mobile bracket and P.T.T. microphone, 27 transistors, 6 FET's one I.C. and 44 diodes . . . . . ~~$350~~ $330

SWAN TV-2C 144 MHz transvertor, 28 MHz input, 240 Watt PEP output on SSB, receiver convertor noise figure less than 3 db with two FET r.f. stages and FET mixer, 5894-B transmitter output stage, to be powered externally from the supply of the driver-transceiver . . . ~~$450~~ $430

SWAN VHF-150 144 MHz linear amplifier, 150 Watt input on carrier with only 2 Watt drive, built-in 240V AC powersupply, with input-output relays to by-pass linear on reception, optional Class C operation for FM and CW or Class B operation for SSB, twin-tetrode RCA 5894-B $375

YAGI ANTENNA 9 elements 144-147 MHz, 9' boom with gamma match fed radiator, perfect 52 or 75 ohm match, locally produced, complete . . . $30

ON ORDER solid state 144 148 MHz amplifiers, 12 V DC operation, no switching required for use with transceivers, using tuned input and output lines and diodes switching. Also, 144 148 MHz masthead receiver pre amplifiers, can be left in circuit unhindered on transmission, giving 12 db gain when switched to reception at very low noise figures, 12V DC

POWER OUTPUT METERS

GALAXY RF-550-A 0-400 and 0-4000 W in line meters, with 6 position built in coax switch . . . $75

SWAN VM-1500, 4 ranges 5 to 1500 Watt rf power in line meter $50

NOISE BRIDGES OMEGA T antenna noise bridges, 0 100 MHz indispensable for intelligent antenna work, still only $25

(see E A. July 1973)

YAESU-MUSEN HF SSB TRANSCEIVERS

Four latest models kept in bond storage in Sydney, approximate prices quoted for supply with approved BY-LAW (import duties exemption) application, bond storage and -clearance and -documentation charges which are presently unknown and may vary from case to case, are **extras**

FT 101	$500
FT 200-FP 200 combination	$325
FT DX 560	$400
FT DX 401	$475

NOTE: Some price reductions since last month although today, 1 August, 1973, two weeks after the Government's 25 per cent Tariff Cut, I still have to pay full 45 per cent import duties (!) on new imports... ARIE BLES.

All prices net, cash with orders basis Springwood, S.T. included in all cases, subject to changes without prior notice. freight, postage & insurance charges are extras!

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Private address 78 Chapman Parade, Faulconbridge.

North Queensland Convention
21st-22nd July, 1973

The Saturday evening dinner dance was attended by 130 people. Highlight of the evening was the after dinner talk by Newton VK4QW. Peter, VK4QD, President of the Townsville Amateur Radio Club is shown presenting honorary membership of the Club to Newton with a suitable momento of the occasion.

Left—
The commercial display of SSB equipment by courtesy of Fred VK3YS, was well received and many amateurs stood gazing at it with that far-away look in their eyes.

Below—
Ron VK4ZLC broadcasting the Queensland Divisional news on Sunday, 22nd July, from the North Queensland Convention. On the left is Peter VK4QD, T.A.R.C. President. Behind is Newton VK4QW waiting to take the call-back on 14MHz.

Left—
Evie, VK4EQ, hostess for the Saturday evening dinner dance, cutting the VK4TC cake

a review of the BARLOW WADLEY XCR-30 MARK 2 receiver

A review by the AR technical staff.

The Barlow Wadley Receiver has already been the subject of two technical reviews; firstly in the RSGB magazine "Radio Communication" for January 1973, and also in Electronics Australia for May 1973. In this review it is proposed to give a picture of the receiver in operation at a typical amateur station by comparing it with some of the better known pieces of amateur gear.

The "Barlow" is a general coverage receiver with a frequency range of 500kHz to 30 MHz effectively in 30 bands each of 1000 kHz. It does not employ any form of bandswitching, the appropriate range being selected by a MHz dial calibrated from 0 to 30 MHz. The kHz dial is calibrated at 10 kHz intervals, the actual divisions being spaced approximately 2 mm. apart. The receiver is complete in itself, the cabinet measuring 292mm.wide x 190mm.high x 98mm. deep (11½" x 7½" x 3 7/8"), and the weight including batteries is 4.14Kg. or 9 lbs. 2 ozs. Reference to the photos shows that the set has the appearance of a typical large Japanese portable receiver, but it is, in fact, manufactured in the Republic of South Africa.

Front panel controls, apart from the MHz and kHz dials, include an antenna trimmer which actually tunes the front end throughout the entire range from 500kHz. to 30MHz; an SSB clarifier control giving a 'band spread' tuning over about 6kHz; a mode switch to select either upper or lower sideband, or AM reception, and a combined off/on volume control. There is also a calibration re-set control, and a small tuning meter.

The "Barlow" operates on the Wadley Loop principle which is also used in the well known Racal receiver and also in the locally designed Delta-het receiver. In order to cover the 30 MHz range, the front end oscillator is tunable from 45.5 to 74.5 MHz. This is then mixed with the harmonics from a one MHz. crystal in a complex system to produce output into a tuneable IF range of 2 to 3 MHz. A 455 kHz IF section follows, which includes two ceramic filters, one giving 3kHz selectivity for SSB, the other 6kHz selectivity for standard AM reception. Both diode and product detectors are provided, the appropriate one being selected by the mode switch. The audio stages are quite conventional and provide in excess of .5 watt output into the built-in speaker or to a 3.5mm output socket for external headphones or speaker.

Before proceeding to "on air" impressions, here is a run down on the more important specifications.

Frequency Scale Accurary:- Within 5kHz. at all frequencies.

Resetting Accurary:-Within 1kHz. at all frequencies.

Selectivity:-6kHz. overall on AM. 3kHz. overall on SSB.

Frequency Stability:- Will hold an AM transmission in tune indefinitely, and an SSB transmission on pitch for long periods of time.

Sensitivity:-Antenna circuit thermal noise audible at all frequencies.

Image Rejection:- 50db on all movable image channels. 60db and better on immovable images.

Current Consumption:- 20mA. quiescent from 6 internal "D" type cells.

THE BARLOW ON AIR.

Initial operation is simplicity itself. To set the receiver to any given frequency it is only necessary to move the MHz. dial to roughly indicate the whole number MHz. range, then move the kHz. dial to the required frequency. The exact frequency is then determined by simply adding the two readings together. It might be thought that the setting of the MHz. dial is a critical process, perhaps in the style of the old band set, band-spread, receivers of bygone years; however this is not the case at all. The action is more related to a switch than to a continuously variable control and when a signal is located, it is only necessary to move the MHz. dial slightly back and forth to peak the signal. The frequency does not vary in any way at all.

For the purpose of our tests, the Barlow was operated on its inbuilt telescopic whip antenna with no external connections at all. The comparison receiver used was a Collins 75S3 connected to a tuned, long wire antenna. One of the first things noted was the difficulty in tuning SSB using the kHz. dial alone. The drive ratio of this is only two to one and, although a large edge type control is provided, it was more good luck than good management if a signal was resolved immediately.

However, it is not intended that SSB signals should be resolved on this dial. The clarifier control provides smooth and easy resolution once the signal has been located. When the process has been mastered, tuning becomes very easy and SSB signals could be located almost as easily as on the Collins. The overall sensitivity of the Barlow on its own whip antenna is quite incredible. On the 20 metre band any signal over 'S'3 on the Collins was readable on the "Barlow." The addition of an external antenna to the "Barlow" made only a small improvement, possibly due to the difficulty in obtaining an impedance match into the external antenna connection of the receiver.

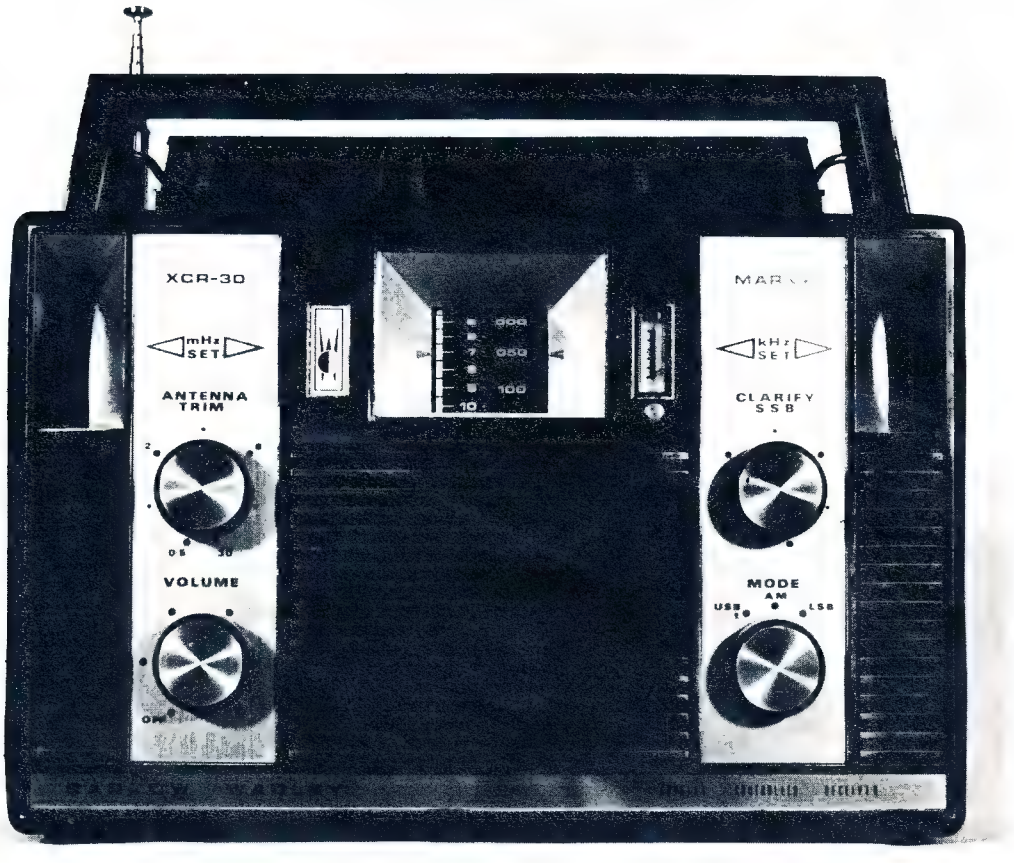
At 7 MHz and lower the Collins pulled away in sensitivity from the "Barlow" and it was found that either an earth or external antenna was needed to restore full sensitivity. Stability of the receiver was also most impressive. In the SSB position, drift did not exceed 400Hz., from a cold start, over a period of several hours operation. Most of this drift occurred during the first half minute due to shift in the BFO, the actual drift in the front end oscillators being so low that it was difficult to measure.

One surprising discovery was that the set caused quite a bit of TVI on both Channel 0 and 2 when tuned around the one to two MHz. range. This occurred when the "Barlow" was used within a twenty-foot radius of the TV receiver. If you live in a low signal area this could be a problem. Also it seems that strong signals from Channel 0 and 2 can cause birdies on the "Barlow" when tuning around the one to two MHz. region. However when used in average locations these effects should not present too much of a problem.

To sum up then, the "Barlow" receiver appears to outperform all other general coverage receivers in the price bracket around $200. It would be hard to imagine a better receiver for the short wave listener.

However, to use the "Barlow" as an amateur station receiver presents a few problems. Firstly, some means of muting would have to be devised, preferably a system that left the BFO operative in order to eliminate the initial switch-on drift. Secondly, and it is perhaps only a minor point, the appearance does not fit in with normal amateur gear.

The Barlow Wadley XCR-30 Mark 2 receiver is currently available from at least one of the advertisers in AR.

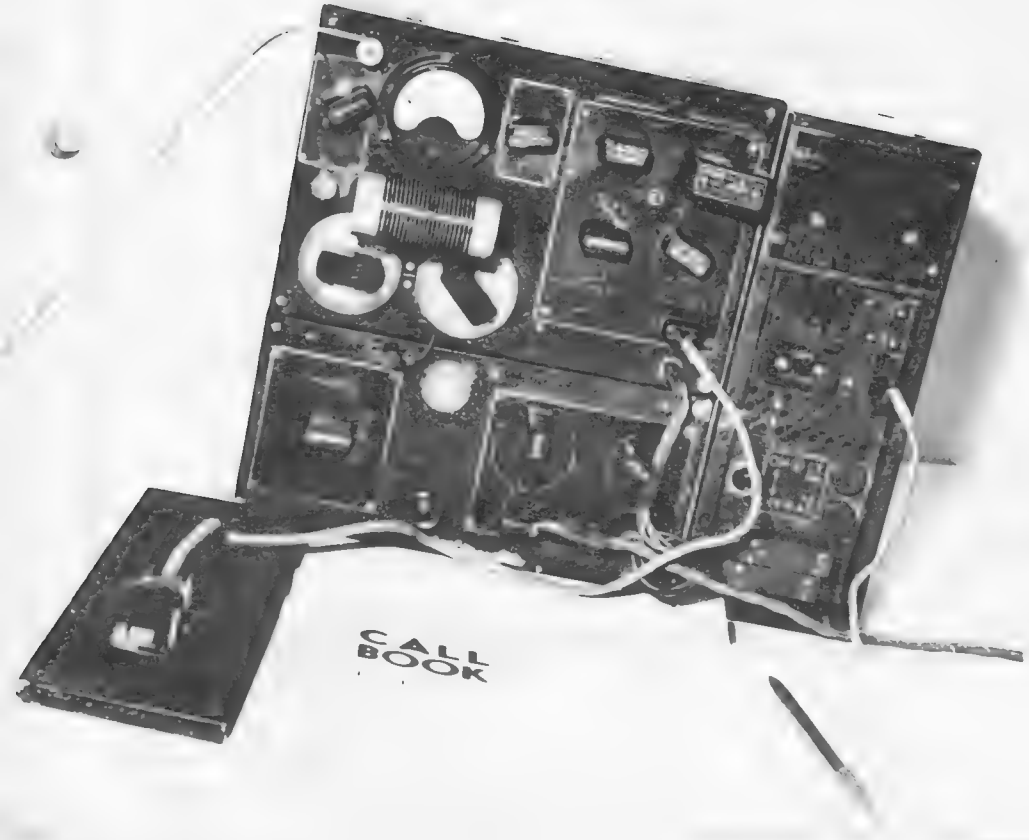


transceivers used by amateurs post-war

Rodney Champness VK3UG
44 Rathmullen Rd., Boronia, Vic., 3155

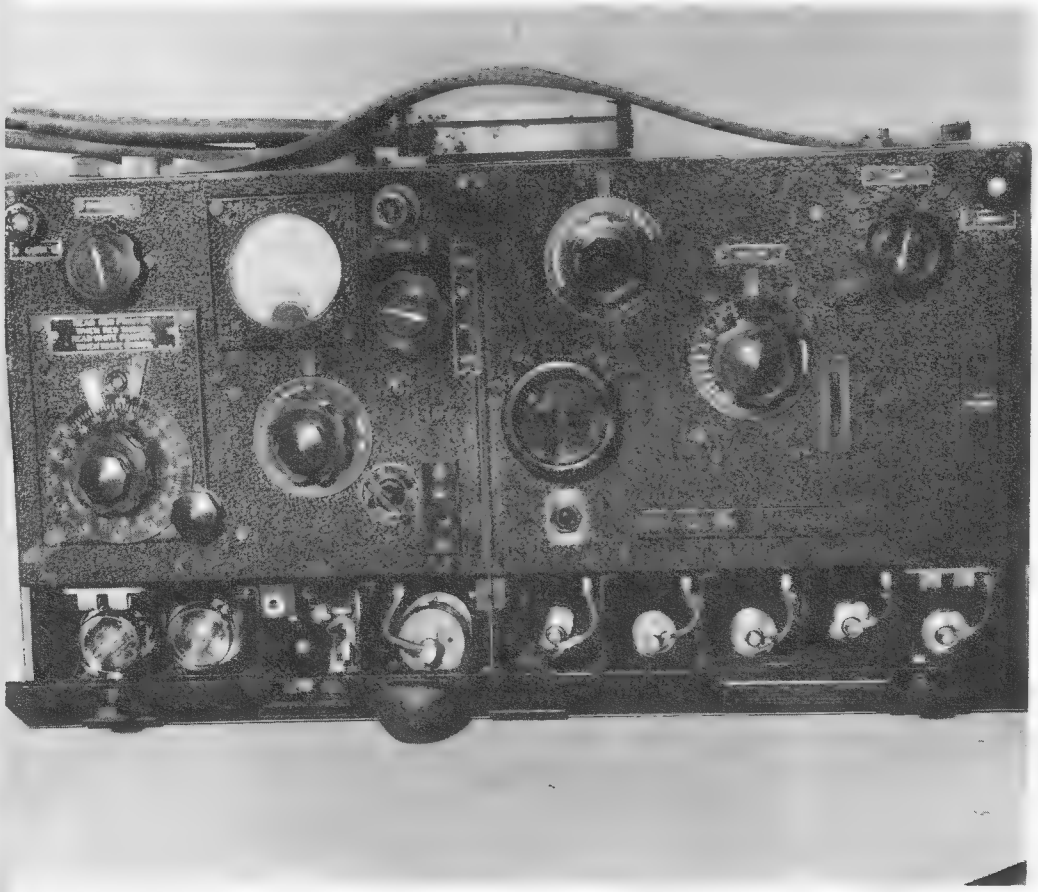
122 TRANSCEIVER

The 122 transceiver was possibly the most used of the WW 2 ex-army transceivers. It covered 2 to 8 MHz in two bands, which meant it covered 80 and 40 metres with no modification. On CW it had an output of 12 to 14 watts and on AM, 7 to 8 watts. The 122 was one of the few sets which had plate and screen modulation; in fact a 6N7 was used in Class B to modulate the 807 output valve. It nominally operated from a 12 volt battery and featured, for its time, one of the lowest current drains on receive of any similar transceiver. These sets were VFO and crystal controlled.



TYPE 3 MK2 TRANSCEIVER

The Type 3 MK2 was designed as a "spy" set for use in occupied territories. These sets used a very versatile power supply and were capable of operating from 6 volt DC and from 110 to 240 volts AC. Their frequency range is from approximately 3Mhz to 15Mhz so covering 80-40-20 metres. This is purely a CW unit and an output of 14 to 15 watts could be expected from the 6Ł6 in the final. Many of these were modified to fit a plate and screen modulator so making them more useful for the average amateur. This set was crystal locked on transmit and fully tuneable on receive.



FS6 TRANSCEIVER

The FS6 is one of the few transceivers that appear to have a wholly Australian history. It covers, in its original form, 4.2MHz to 6.8Mhz. They were easy to pull onto 40 metres and some chaps got them going on both 80 and 40 metres. They worked off a 6 volt battery and used a combination of battery style 2 volt valves and one 6 volt valve namely a 807. This is a AM/CW transceiver although it does use grid modulation in the AM mode. The output power on AM was 4 watts and on CW 8 watts. The transmitter and receiver were both fully tuneable.

These three sets were probably the most popular of the transceivers which came onto the market after WW2. The sets no doubt were used in many a Remembrance Day contest. These particular sets were photographed in VK3UG's museum by Cyril Maude VK3ZCK.

BOOKS OF INTEREST FOR AMATEUR OPERATORS

★ Phillips—**1973 POCKET BOOK** $2-00
★ **NEWNES RADIO ENGINEER'S POCKET BOOK, 14th Edition** $4-25
★ Badmaieff & Davis—**HOW TO BUILD SPEAKER ENCLOSURES** $4-20
★ Lytel—**ABC's OF ELECTRIC MOTORS AND GENERATORS** $3-15
★ Fantel—**ABC's OF HI-FI AND STEREO** $2-95
★ Lytel—**SILICON CONTROLLED RECTIFIERS** $3-15
★ Phillips—**THYRISTORS** $3-45
★ Phillips—**FIELD EFFECT TRANSISTORS** $3-45
★ Phillips—**BUILDING HI-FI SPEAKER SYSTEMS** $3-45
★ Frost—**HOW TO LISTEN TO THE WORLD** $4-00
★ Dover—**BASIC THEORY AND APPLICATION OF TRANSISTORS** $2-05
★ Sams—**TRANSISTOR SUBSTITUTION HANDBOOK, No. 13** $3-15
★ Middleton—**HI-FI STEREO SERVICING GUIDE** $5-95

Add Postages: Local 35 cents, Interstate 65 cents

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Newcomers Notebook

with Rodney Champness VK3UG

44 Rathmullen Rd., Boronia, Vic., 3155

As stated last month I intended to build up a signal injector. Strangely enough I did build it, and it took all of half an hour to complete.

YRCS TRANSISTORISED SIGNAL INJECTOR

Bob Callander and his helpers in the projects section of the Youth Radio Club Scheme have been at it again with another winner of a project. The first project was a BFO kit which sold for $2 plus 30c postage. Bob informs me that they have sold 100 of these kits. The signal injector that I built is their second project. I timed my construction time as noted above. I believe that depending on your skill in wiring construction it should take between 15 minutes and an hour.

A lot of thought goes into the design of these projects, so as to present a simple, cheap, and effective piece of equipment. Once again they have succeeded. The signal injector is constructed on a small piece of matrix board, and the whole thing fits in a small plastic tube. Used, large hypodermic syringes are ideal for this job, as they have a rubber bung at one end and a small tube leading out the other to act as the probe outlet sleeve. Everything is in the kit to complete the job with the exception of a few inches of hook up wire and a couple of inches of solder. There are two NPN silicon transistors, 4 resistors, 3 capacitors, matrix board, a penlite cell and the plastic case — plus comprehensive construction information. Bob (VK3AQ) indicates that future kits will have hook up wire and solder.

I found that the injector did not draw all that much current, in fact my unit drew about 0.2 ma. I decided to experiment a little with the collector resistor values which are 10k ohm as supplied, and gradually reduced them to the region of 2.2k ohm. This did in fact increase the output of the unit to a more useable level for some types of circuits. Mine finished up drawing about 0.6ma.

The on-off switch for the injector is formed by twisting and untwisting the lead to the negative terminal of the battery. Crude maybe, but it must be remembered that the signal injector will not be used every day by the average experimenter, so it will last a long time and is cheap.

Another advantage having the negative lead come outside the unit is that it can be used as an earth. I used a small lead with an alligator clip on both ends; one end clipped to the negative terminal of the battery and the other to the earth of the equipment under test. This brings up the effective output for some types of circuits where sensitivity is low or the impedance is low. Now one caution when the earth lead is used during the tests. **NEVER** use the earth when testing high voltage equipment. Why you might ask? If the earth lead is connected and then the probe is placed on a component operating at say 200 volts above or below earth, a very high damaging spike of current and voltage will appear across the probe capacitor and the transistor. These share the voltage in inverse proportion to their capacity. The probe capacitor has a value of 0.002uf and the transistor has a value across its junctions of maybe 10pf. The transistor may have to stand momentarily 190 of the 200 volts. The type of transistor used in such a project as this will not normally have a rating above 40 volts Collecter to Emitter. If you do not observe this warning you will ultimately find the injector just does not work. One or both transistors will have expired. I know, I had to find out the hard way. You do not have to! If you do use it on valve equipment, use it without the earth or, alternatively, only put the probe on parts of the circuit where the potential to earth is no more than about 20 volts. For instance the grids of most valves will be a safe place.

I have only two small criticisms of the injector, or more precisely the information supplied. The circuit drawing is hand drawn, and the pin connections of the average transistor are not included. Other than that I can do nothing other than recommend this kit for any newcomers or, for that matter, some not-so-newcomers like myself. The YRCS are selling the injector kits for $2 plus 20c postage. They are available from Bob Callander of 383 Warrigal Road, Burwood, 3125.

There is one possible fault you may strike with the injector. Sometimes it will not work, and not for the reason mentioned previously. The leakproof batteries in vogue at the moment have a double bottom and sometimes these two layers of metal don't make contact — therefore no voltage. These batteries are designed to be used under slight compression. Some of the Japanese batteries appear not to be double bottomed and it may well be preferable to use them as replacements when the time comes. Figure 1 shows the circuit of the injector and the base diagrams of the transistors. As can be seen the circuit is simple and can form the basis of many other simple projects.

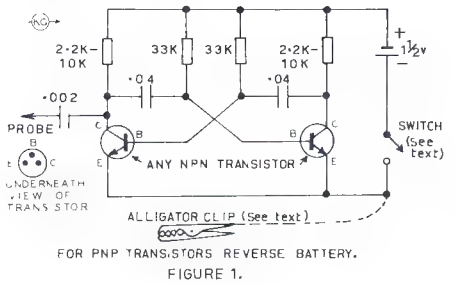


FIGURE 1.

USING THE INJECTOR AND HOW IT WORKS

Next month I hope to show you how a signal injector works, and how it can be used to fault-find the audio and RF sections of equipment. It can even be used as a tone source for a morse code practice oscillator or for the modulation on an A2 type transmission. Do you know how a device which is oscillating at say 1kHz can be used on RF circuits? Wait for next month s instalment.

ODDS AND ENDS

The RF probe in the June **Newcomer's Notebook** can have one extra component added to prevent destruction of the OA91 diode. When this probe is used on circuits with high DC voltages to earth much the same problem as I warned you about regarding the signal injector and high voltage can occur. To overcome this problem, I drew the circuit such that the high voltage pulse from the plate circuit of a valve transmitter stage will cause the diode to conduct — not be reverse biased. To be doubly sure an NE2 neon indicator worth about 25c can be placed across the OA91 diode. The striking voltage of the neon is lower than the Peak Inverse Voltage rating of the diode. The diode should then last for ever, theoretically, as long as you do not put too much RF through it.

If you are an amateur how do you monitor your signal? You are required to do so according to regulations! There are many ways of doing this, but can your monitor tell you anything about your signal other than it sounds alright? Can you tell, for instance, how much modulation you have on your AM set, or are you flat topping on SSB? Can you be certain how much deviation you have on your FM set? I will be very interested to hear what you use, because I believe that there is a dirth of good station monitors that are simple and effective. ●

"The Ham from Snowy River." by Alan Shawsmith VK4SS.

(With apologies to Australia's Immortal Bard — A.B. 'Banjo' Paterson. Author of 'The Man from Snowy River' and 'Waltzing Matilda'.)

There was movement on the Ham bands, for the word had passed around
that a contest big and rich was under way,
And from official sources, it was worth a thousand pound.
So all the cracks had gathered to the fray.
All the tried and rare DX'ers from stations near and far
Had mustered on the Ham bands overnight,
For contestors love hard fighting where'ere the rarıes are,
And put their rigs to battle with delight.

There was Harrison who made it when he won the CQ cup.
An old man now with hair as white as snow;
But few could stay beside him when his blood was fairly up-
He'd go where'ere DX and rig could go.
And Clancy of the Overflow came on to try his hand,
No better code man ever held a key·
For not one op. could throw him while the heated rig would stand –
The Overland had taught him well, you see.

And one called in, a Novice with a small and weedy rig;
Something like a QRP'er undersized
But built to stand the climate and thrice tested for it's sig,
Gear that's by mountain DX'ers prized.
But still so small and tiny, one would doubt it's power to stay
And the old man said, "That rig'll never do
For a long and tiring contest lad. You'd better give away,
A two day test is far too much for you."

So he waited, sad and wistful – only Clancy stood his friend,
"I think we ought to let him in," he said.
I'll warrant he'll be pitchin' with us right until the end,
His rig's homebrew but he is mountain bred."

.

They found the DX raries in the first big pile up clump
And called hard from the mountain brow
The old man gave the orders. "Boys, go at 'em from the jump,
No use to try for fancy working now."
So Clancy tried to work 'em – he was breaking on the wing,
Where the best and boldest DX'ers take their place
He turned his beam toward them and he made the ranges ring
With his keyer as he met them face to face.
But the QRN was awful and the gorges deep and black,
Resounded to the thunder of its cries,
And the CQs' woke the echoes and were fiercely answered back
From the Ionosphere pulsating in the skies

When they reached the half way mark, even Clancy took a pull.
The pace would make the bravest, stay, relent.
The QRM lay thickly but still the bands were full
Of maddened ops urged on by victory's scent,
And the old man muttered fiercely, "We may bid the mob good-day,
No man can hold them now from here."
But the Ham from Snowy River wouldn't give the game away.
He swung his beam around and gave a cheer.

He was still among the callers as the sun began to rest
And other mountain Hams now sitting mute,
Heard him ply the keyer faster; he was right amidst the best
As he raced across the bands in hot pursuit
Then they lost him for a moment where two S9 s gnals met
And widely spread – but a final glimpse reveals
On far and higher frequencies, the rare ones calling yet,
With the Snowy River Novice on their heels

And he logged them now he logged them. Till he'd made the QSO
He followed like a bloodhound all the way
With a pace that never slackened – and as the records show,
He alone and unassisted, won the day.
But his hardy mountain rig now could scarcely raise a watt
The PA tube was red from hip to cap,
But it struggled on undaunted with a courage fiery hot,
Until the Novice sent his final tap.

And down by Kosciusko, where the pine clad ridges raise
Their torn and rugged battlements on high,
Where the air is clear as crystal and the white stars fairly blaze
At midnight in a cold and frosty sky,
And where around the Overflow, the reed beds sweep and sway
To breezes and the rolling scrub is thin.
The Ham from Snowy River is a household word to day,
And the others tell the story of his win

a saga of the bug

Ken Gillespie, VK3GK

P.O. Box 5, Clayton, 3168.

The word "Bug", whilst being a trade mark, is known in radio circles as the generic name for any mechanical semi-automatic code key. These days the name has even been incorporated in a purely electronic device known as an E1-bug. However it is interesting to follow advertisements for the genuine article over the years.

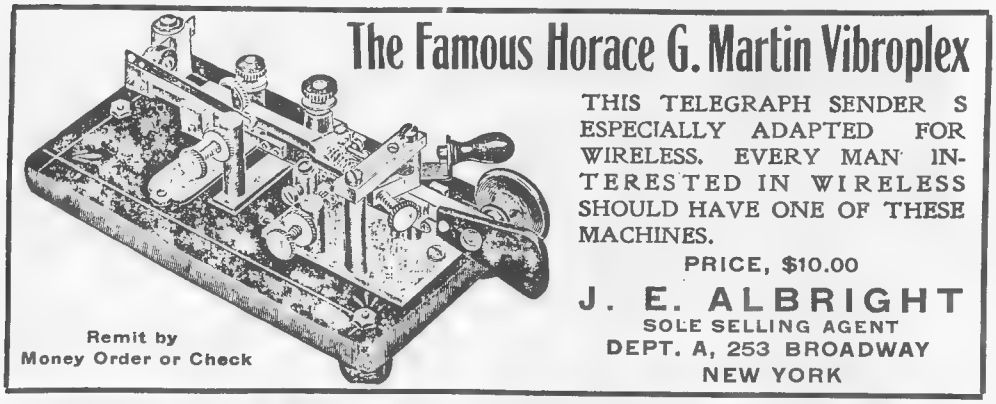
The earliest such advertisement I came across appeared in a December 1911 magazine and is shown in the facsimile. Notice that it is the Horace G. Martin Vibroplex for $10 and J.E. Allbright is the sole selling agent at 253 Broadway, New York.

In 1921 it becomes Martin's New Improved Vibroplex Bug and is sold by the Vibroplex Co. Inc. (established 1890) now situated at 825 Broadway and the price is $17.

By 1931, the Genuine Martin Vibroplex bug is still $17 but a special radio model is introduced at $25. The Vibroplex Co. Inc. has a J.E. Allbright as president. A 1942 advertisement shows Allbright still president but the Martin has been deleted and is no longer even printed on the key. Price has dropped to $15.95 and the firm is now at 833 Broadway.

The key is an expensive $24.95 in 1968 from the company at the same address. For the first time, Mr. Allbright's name does not get a mention.

I notice that the company still advertises, but not so much of recent times. The original unit can still be bought, but more emphasis is placed on a mechanical device for people making electronic keyers. It seems a little sad to see the old keyer being superseded by the self completing dots and dashes of solid state. ●


The Famous Horace G. Martin Vibroplex
THIS TELEGRAPH SENDER S ESPECIALLY ADAPTED FOR WIRELESS. EVERY MAN INTERESTED IN WIRELESS SHOULD HAVE ONE OF THESE MACHINES.
PRICE, $10.00
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SOLE SELLING AGENT
DEPT. A, 253 BROADWAY
NEW YORK
Remit by
Money Order or Check

Advertisement from "Modern Electrics" December 1911

W.I.A. WESTERN ZONE CONVENTION

Will be held at **Stawell** on **Saturday** and **Sunday, October 6th & 7th, 1973**

Saturday—Electronics Display Dinner, Evening Entertainment

Sunday—Carphone checks,

Barbeque at Hall's Gap and visit to the beautiful Hall's Gap Wild Flower Exhibition Details, Bookings.

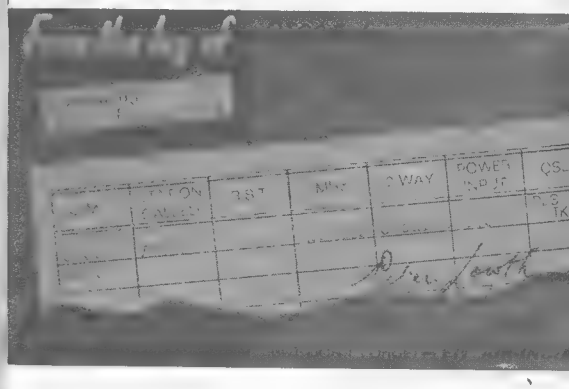
Max Grimble,
Wartook Wayside,
Horsham, 3400

Albert Cash, L3289, Victorian Intruder Watch Coordinator, shows an Intruder teletype printout being received on the 14MHz band.

PROJECT AUSTRALIS

with David Hull VK3ZDH, Chairman, Project Australis.

Don VK6HK has had the thrill of making one of the more exotic satellite contacts through Oscar 6. The QSO with ZE7JX was well beyond the normal range of the satellite and Don has the QSL card to prove the contact.



Commercial Kinks

with Ron Fisher VK3OM

3 Fairview Ave., Glen Waverley, 3150

This month I am going to continue with the FT101 modifications published originally in the English "Mobile News", the journal of the Amateur Radio Mobile Society.

From the October 1972 issue here is some data on front end improvements for early models of the FT101.

"Simply because there must be thousands of FT101's in use throughout the world, in fixed and mobile installations, and because you cannot please all of the people all of the time, we receive a steady stream of suggestions for 'improving' the performance of this ingenious transceiver.

Sometimes the situation gets rather confused since some users complain of faults which are absent in the other owner's sets. What has transpired is that, whilst all are called FT101, there appear to be subtle differences between the components used in the earliest and later models. This is encouraging in a way, since it shows that the makers are constantly striving to improve overall performance in the light of customers' experiences.

The latest contribution is taken from notes sent to Sandy Duncan GM3DZB/m, by 9M2CP from Penang Malaysia, whose permission we have to publish them."

Phil's opening remarks are important and confirm what we have suggested.

. . . I must warn that not everyone's problem is the same. This is due to location, strength and frequency of interfering signal (s) etc. as well as model numbers being differently designed. I have also found, when comparing notes on results of modifications, that trouble has also been caused by differences in transistor parameters used in different sets. So with the above preamble I'll get on with the details. Bear in mind they are mostly gleaned from my own personal views, and experience. The problem as I see it can be broken down as follows:-

1. Intermodulation caused by several strong out-of-band signals.

2. Spurious unmodulated in-set responses from either the various oscillators or harmonics of them, or those induced by the various diodes.

3. Blocking.

A. The front end diode, DD13, provides some spurii and unwanted signal. It can be removed (I have shorted it out so it can be put back if needed). Then if this is done lift off R49, 1K ohms, or remove it. The 30 pf C122 can be left in circuit, or removed.

B. The latest FT101 has a 14 volt pilot lamp placed in series with this line, I believe as an RF overload protection for the coil windings.

C. If the above is done it is advisable to replace the RF amplifier with a dual gate, diode protected MOSFET. The RCA 40673 is one of the best. I would suggest this change in any case. Any suitable substitute will do.

D. Board PB 1077B. There are two main causes of trouble on this board. (a) The first mixer. (b) The local oscillator. After considerable experimentation I found that replacing the first receiver mixer with a BF 173 and the local oscillator with a BC 109 (not 107 or 108) gave excellent improvement to cleanliness of unwanted, out of band signals and 'jingle-bells'. The oscillator certainly needed cleaning up. The latest model FT101 uses a buffer transistor between the L.O. and mixer. I tried with some success but could not get both the transmitter and receiver mixers fed with the proper signal levels.

E. My set is now satisfactory. I have one more modification to make and that is to use a double balanced modulator. VK5PX and VK5XV swear by this one. I have tried so many mods in the mixer stages that have not improved matters that I am very sceptical about anything now. I am also not even certain now in which mixer the trouble really is. I was inclined to think in the first, then the second, and now I think the trouble is in both.

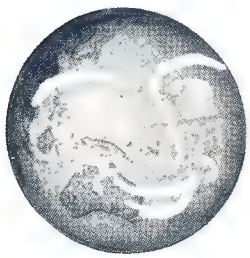
F. The diodes in the noise blanker are another story and this also needs looking into."

Well there you are, go to it and let us know your results.

Before closing for this month, some information on the Fox-Tango Club. It is an association made up mostly of owners of Yaesu transceivers for their mutual benefit. Although originally organised for owners of the FT101, extension to other models is now being considered.

An interesting news letter is published at regular intervals. Milton Lowens WA2AOQ; 3977-F Sedgwick Ave. Bronx, New York. 10463 USA, is the man to contact for details of subscriptions, etc.

My thanks to VK4NS for bringing my attention to this very worthwhile club. ●



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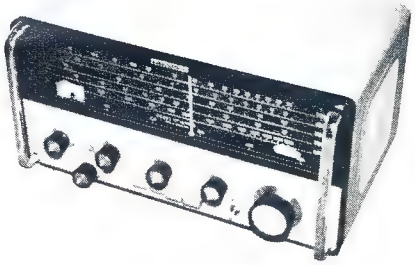

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E.C. 10 Mk II A.R. 9/73

Jamboree on the air

Every year many pleasant, successful visits are made by scouts to friendly amateurs, and interesting contacts are completed. But sometimes we hear:

- VK2XYZ this is VK3XYZ. I'll get Mike to say hello. Hello.
- VK3XYZ this is VK2XYZ. I'll get Fred to say hello. Hello.
- VK2XYZ this is VK3XYZ. Well thanks for the contact; we'll look around and see if there's anyone else to talk to. VK2XYZ this is VK3XYZ.

Or maybe after calling CQ for a quarter hour you get this: "— VK2XYZ this is VK2XYY. We're just a few blocks down the street from you. Name here is Brian! That's B R-I-A-N. Brian. Boston Radio India America Norway. Brian. Heard you calling and thought you might just give me a report on a new cubical quad I've installed. The SWR is about 1 to 1 and front to back ratio is over 40 db. I'll call you long path first, HI. Just keep watching the old S-meter now. We're pouring out 500 watts PEP from a XX-5367Q in grounded grid driven by a couple of XXX-5366R in push-pull. Microphone's a cardioid ceramic 10-Z What's this jamboree you were calling? Some sort of new prefix or something? Watching the S-meter? Now I'll swing it round then swap to the old Yagi; used to get a bit of TVI with it but . . . Blah blah . . . ." Suggestion? Give him 20 seconds then QSY.

For what they are worth, here are some more suggestions for Jamboree Day, meant for the 10 to 11 year olds.

1. Ask the scout leader to only bring children interested in radio.
2. Remove anything that can be knocked over.
3. Put a large mat over any wires on the floor.
4. Put away anything that can be picked up and dropped.
5. Have a list of suitable comments and questions clearly written on card; have a visitor read this through before starting.
6. Have printed signs in position, e.g. "Transmitter", "Receiver", "Antenna", "Power Supply", "Main Switch" etc.
7. Have rig tuned to 20 or 40 meters before visitors arrive; never keep them waiting while you twiddle every knob in sight.
8. Have only two or three in shack at a time; ask scout leader to mind surplus in back yard. They will need shuttlecock, football, dart board or something.
9. Before a QSO briefly point out features of interest, license, awards, transmitter, receiver, etc.
10. Explain prefixes — VK, ZL, W, K, JA.
11. Tune in a good signal and ask if they can understand it (SSB often takes getting used to).
12. Never bore everyone with weak signals.
13. Talk English. Absolutely banned — QRMary, Handle, Hi, 73, DX, Phonetics, QRX etc.
14. Avoid all technical jargon.
15. Give call-sign every five minutes — not every break. It is most important not to turn contacts into mumbo-jumbo.
16. Use question-answer technique; never talk for five minutes, or even two minutes.
17. Advise visitors to ask questions twice, and to repeat anything important, such as names.
18. Have a few lollies and soft drinks ready outside for a good finish.
19. Offer your QSL card and a few spare DX ones as souvenirs.
20. Mention W I A services.

Lee Kinsella, VK2AXK.

Awards Column

with Geoff Wilson VK3AMK

In 1973 the City of Bamberg, Germany, celebrates its 1,000th anniversary. Non-European stations contacting three amateurs in the Bamberg area during the period 1.1.73 to 30.6.74 will be eligible for a special award to commemorate the event. There are no band or mode restrictions. Every station can be worked once on each band. To receive this award send your QSL cards for the Bamberg stations, together with a fee of DM 5, $2. US., or 10 IRCs, to the Award Manager, DL8NG, Wolfg. Graf, D86 Bamberg, Michaelsberg 4, Germany. ●

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VK3	144.700	VK3RTG, Vermont.
VK4	52.600	VK4WI/2, Townsville.
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VK6	52.006	VK6VF (VK6RTV), Bickley.
VK6	52.900	VK6RTT, Carnarvon.
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HL	50.100	HL9WI, South Korea.
	52.010	
KX6	50.110	KX6HK, Marshall Islands.

NEW W.I.A. DIVISION

This page takes the opportunity on behalf of the VHF fraternity in wishing the newly formed A.C.T. Division of the Wireless Institute of Australia every success in the future, the formation of which was instigated by the Canberra Radio Society, an organisation of some 22 years standing. The first meeting of the new Division was held on 23rd July, 1973, the President being John Lauten VK1JL, and Secretary Andrew Davis VK1DA. The A.C.T. Division Federal Councillor is the well known VHF operator (and HF of course) Eddie Penikis VK1VP. New members and visitors will be welcome at meetings and other activities, and information may be obtained by writing to the Institute at P.O. Box 1173, Canberra City, A.C.T. 2601.

BY LAW ENTRY OF EQUIPMENT

The Editorial by Roger VK2ZTB in the July issue of "6 UP" on the above subject makes sensible reading, and food for thought and as there is room this month in the column I think the comments should be digested by wider group of people. I therefore quote:

The recent announcement that amateur equipment may be brought into Australia under by-law entry will be welcome news to many. It will probably stimulate activity to a certain extent, but I note from the information received that VHF equipment appears to be excluded. Now, one does not really know whether to look upon this as a blessing or a curse. If VHF equipment is included then the increase in "appliance operators" is likely to be considerable. Now this is not necessarily detrimental as it can be argued that, after all, appliance operators do populate the bands thus saving it for the experimenters/frontiersmen from the clutches of commercial encroachment.

But then appliance operators are notorious for being confused by more than three knobs or switches and thus will tend to buy either the simpler FM equipment or the fully automatic variety. Consequently, they will congregate on the FM nets which is not necessarily a bad thing either Less QRM and confused operating on the other end.

Then again, more people should be encouraged to operate tuneable, and the relatively sophisticated equipment that comes within reach of the pockets of more people allows (and indeed encourages) them to indulge in such activities as meteor scatter, tropo scatter etc. which is all to the good. It also allows contact with those experimenting with UHF or sophisticated communications methods or circuits, which can only be a good thing in the long run.

In one sense, if by-law entry of VHF equipment is possible, then it could prove detrimental to the hobby by encouraging "the curse" of toy radio, but the possible advantages to be gained from the availability of more sophisticated equipment may outweigh the disadvantages thus introduced. Think about it." Unquote.

Since that editorial was prepared there has been the further decision of a general reduction of 25 per cent in tariffs which may also have a bearing on the matter. One certainty is that as SSB operation is increasing rapidly on VHF, a logical starting point for a good signal is one of the proven SSB transceivers in conjunction with a transverter.

CONFIRMATION OF RECORD.

The Australian record for 2300 MHZ set up on 19th May, 1973 between VK2ZAC/2 and VK2BDN/2 operating between Priest's Ridge near Kulnura to Mt. Gibralter near Mittagong is confirmed. The distance is 159.931 Km (99.376 miles).

To be sure there are many problems to be overcome in the transverter, but a good transceiver halves the problems straight away. Anything which allows better equipment to come into the hands of those prepared to use it intelligently for improving and updating the state of the art in many more shacks, can only be good, particularly as we do not have a large enough amateur population in Australia to adequately support industry along similar lines.

BENDIGO REPEATER

John, VK3AAA, has written with some more information on the Bendigo Channel 4 Repeater. He advises that the repeater is at present operating on low power from Flora Hill. Although Departmental approval has been obtained to relocate to Mt. Alexander (2432 feet a.s.l.) it was the original intention to delay, as a matter of convenience, both this and the increase in power until the question of repeater frequencies was satisfactorily resolved.

It is now felt that, as both of the other existing Ch. 4 systems in Victoria at Geelong and Gippsland have been moved to higher sites, the full extent of co-channel problems should be thoroughly investigated before any changes are made. Consequently the Bendigo Group has resolved to bring forward the date of relocation so that the extent of the common coverage areas between all three repeaters can be fully assessed before any frequency changes are made.

GENERAL

I have been somewhat out of touch with things this month due to exams, a week suffering with the wog, and sundry other things like stocktaking, income tax etc., plus many things you would not really care to hear about. Thus news is a bit scarce, but nothing unusual for this time of the year. I note that most of the other publications I have received for the month have been very light on for general VHF news. Obviously too cold for people to write to me. Anyway, we will not waste the Editor's paper, so will close at this point with the thought for the month: "A good woman is like a good book – entertaining, inspiring and instructive, sometimes a bit too wordy, but when properly bound and decorated, irresistible. I wish I could afford a library."

The Voice in the Hills.

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6	VE6EO	23	VK2ARZ
7	ZL2OA	24	ZL2AGR
8	VE5SM	25	ZL3KO
9	ZL2AH	26	ZL1AGO
10	ZM2ANA	27	VK7AL
11	VK2CX	28	W7KSA
12	ZM3ACZ	29	ZL3ACS
13	ZM3SX	30	VK2APL
14	ZL3ZD	31	VK2BZV
15	[illegible]	32	VK3APU
16	VK7BR	33	ZL3AZ
17	VE6MP		

20 Years Ago
with Ron Fisher VK3OM

September 1953

The VFO at VK3WI, by Jack Duncan, VK3VZ, headed the technical articles in the September issue of AR. As well as being technical editor of Amateur Radio, Jack was closely associated with the design and construction of the transmitting equipment at VK3WI when this station was located in Queen Street in the heart of Melbourne.

Jack's VFO was based on the then easily obtainable Command transmitter. Stability of the completed unit averaged better than 5Hz in a one minute period, which would be considered good even with today's sideband gear. If you are considering using a Command transmitter as a VFO, reference to this article would be very worth while.

Part three of "Amateur Television" by E. Cornelius, VK6EC, described a synchronising signal generator. This was an article with lots of good information, including data on trigger multi-vibrators, step counters, clippers and limiters.

VK7RK's DX notes reported the first amateur contact between Australia and Easter Island which was chalked up by VK7KB who worked CE0AA on 40 meter CW. Other DX at the time was just so so. VK's working all the DX over this period included VK2AOU, VK2AMB, VK3AHH, and VK9YY.

Commercial interference in the 7MHz band is certainly not a new problem. Federal Notes report that representations have been made to Mr R. G. Casey, Minister for External Affairs, and the Post Master General, Mr H. L. Anthony, regarding transmissions from Radio Pakistan. Both these gentlemen promised to take action on the matter. ●

Y.R.C.S.
with Bob Guthberlet

Methodist Manse, Kadina, S.A., 5554

NEW VK6 SUPERVISOR

We welcome Mr N. H. Hyde of the Hamilton Senior High School, who has taken over from Laurie Jessop, to whom we express our thanks for services rendered in the West. Ironically, it would seem that communication is a major problem in Y.R.C.S. Kev Watson in N.S.W. is tackling the problem with a News sheet to clubs. The new supervisor in W.A. wrote to a supervisor in another state and after several months came to the conclusion that the said person was either deceased or suffering from rigor mortis! S.A. supervisor, Allen Dunn, commenced a recent letter as follows: "Just so that it cannot be said that the S.A. Supervisor is slow in keeping the Federal Co ordinator informed, here is the latest on the YRCS situation in VK5." Welcome to Noel Kohler, the new S.A. State Secretary. June annual meeting of the S.A. area discussed the proposed new syllabus and favoured provision being made up to AOCP level.

Congratulations to the Maitland Radio Club in having been awarded, for the fourth time, the pennant from the Institute of Radio and Electronics Engineers of Australia. This club is busy in promoting a new building scheme which, when completed, should prove an outstanding contribution to the advancement of YRCS in that state. It is noted that Maitland has the backing of civic and district organizations, an area which other clubs could consider. The YRCS has nothing to hide and much to publicize! We congratulate the Marist Bros. High School Radio Club in gaining the pennant for a non-school radio club; also its leader, Bro. Cyril, who received his AOCP through instruction in the Maitland club.

On the Federal level, I have requested State Supervisors who form the Council, for permission to have the constitution amended as follows: Article (5) sub section (f) "To exercise such authority as may be necessary in the development of, and in the interest of, Y.R.C.S." This added clause will enable the Federal Co-ordinator to make such decisions as may be required between triennial meetings.

We are hoping that the Syllabus Committee will be able to furnish a complete and adequate decision on our teaching notes when the Novice Licence details are available. In the meantime, we have the task of promoting the scheme with publicity and achievement.

As communication is one of our objectives, will supervisors please keep me informed of any major movements in their respective states. ●

Contests

with Peter Brown VK4PJ

Federal Contests Manager, G.P.O. Box, 638 Brisbane, Qld., 4001.

CONTEST CALENDAR.

September 1 2: Gold Coast Amateur Radio Club Field Day.
September 8 - 9: Worked All Europe DX 'phone Contest.
September 15 - 16: The 15th Scandinavian Activity Contest, CW.
September 22 - 23: The 15th Scandinavian Activity Contest, 'phone.
October 6 7: VK ZL Oceania. 'phone. Do your bit with the mike.
October 13 - 14: VK-ZL Oceania. C W. More VK CW operators needed.
October 13 14: RSGB 21-28 Mhz. 'phone.
October 20 - 21: RSGB 7 Mhz CW.
October 27 - 28: CQ - WW - DX 'phone.
November 3 - 4: RSGB 7 Mhz 'phone.
November 11: Czechoslovakian contest.
November 24 - 25: CQ WW - DX CW contest.
December 8 to January 20: Ross Hull Memorial VHF-UHF Contest. Rules in next month's **Amateur Radio**.
February 9 and 10: John Moyle Memorial National Field Day.
February 24: Central Coast Amateur Radio Club Field Day, VK2.
When is your Club or Division holding a contest?

WHAT AGAIN???

Yes, again I mention the VK ZL Oceania, on October 6 7 and 13 14, and the importance of "flying Australia's flag" in the International field. Put in a good attempt for your country and build up your state's representation. There is every chance that you could work DXCC on that weekend. Get on the air and the bands will not be "dead". You will note that the RSGB 21 28 MHz 'phone contest is on one of the weekends so you may be able to squeeze a few CW contacts out of those bands.
Also in October and November are the popular CQ WW - DX 'phone and CW contests. Keep the dates clear for a few hours at least.

Unofficial CW Contest.

Thanks to the operators who wrote to me of the above contest, and told me that few know what the contest is about, and that all seem to be experienced operators.
The best log for May was VK3QK 17 contacts.
June VK3XB - 27 contacts.
July to come.
I guest that if we do not try we certainly shall not succeed in developing CW. VK3 lead easily . . . no VK4s or 5s?
Frank VK4II has yet to get his tower up at a new QTH or he would be on. Let us carry on to November and see if the CW contest is worthwhile.
Here are the simple rules . . .
Third Sunday. 15 Sept., 20 Oct., 17 Nov., 0800-1400GMT. (6 pm - 12 pm EAST) Bands 80, 40, 20. CW-CW only. VKs only. One point per contact, one contact per station per band. No logs. Your Callsign and score only. No sheepstations either. You will note that there are CW contests on Sept. and Oct. dates.

1972 CQ - WW - DX Contest results, Australia.

	Band	Points	Contacts	Zones	Countries
VK2BJL	14MHz	29580	128	26	59
VK3JF	A11	61608	168	47	89
VK3SM	21 MHz	15660	124	20	25
VK3ARY	14 MHz	35208	163	25	47
VK4FH	A11	129168	402	43	65
VK4AK	A11	46618	122	53	90
VK4PJ	28 MHz	5088	56	12	20
VK4DO	14 MHz	34224	136	32	61
VK5MF	A11	46325	186	36	49
VK6NE	A11	5412	83	10	12
VK6HD	14 MHz	706251	1483	37	132

Congratulations VK6HD on a fine effort.

EX-G CONTEST. The week end of 10th 11th November (first week end after 5th Nov.) from 00.00Z on Saturday to 23.59Z on Sunday any mode any licensed frequency. Objects of the contest are to publicise reciprocal operating privileges Worldwide and to promote links between the **Ex-G Club**, Overseas British residents and amateurs in the U.K. Only 24 hours total operating time may be counted in the contest period.
Ask your G contacts or a member of the Ex-G Club for further details if you are interested in this contest. ■

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With Syd Clark, VK3ASC

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Letters to the Editor

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the Publishers.

The Editor, A.R.

Dear Sir,

In view of the amount of publicity recently in regard to Churchill Island, I feel it could be of interest that amateur radio has been associated with the Island since it was purchased in 1939 by Harry Jenkins, who was a Collins Street Dentist.

His son, Ted, suffered paralysis at the age of 16 and studied and obtained his A.O.P.C. at the same time as the Writer.

He operated from Churchill Island under the call sign VK3QK, from the end of the war when licences were restored, until his death, originally using a home built rig, operated off a vibrator power supply, but later when they installed a 32 volt power plant, he used a disposal G09 transmitter from down there.

The original antenna was a long wire strung from the top of a pine tree near the house extended about 300 yards to another pine tree, but later the Writer and Arthur Tinkler, VK3ZV, with some otherr assistance, put up a rotary beam on top of a pine tree which was used quite successfully.

Ted was active from both Churchill Island and his home address in St. Kilda Street, Brighton, and during these years quite a number of amateurs will remember working Ted Jenkins on 10, 20 and 40 metres.

Perhaps it is unfortunate that the advent of S.E.C. power to the Island, which would have made things far easier than they were in the early stages, occured when Ted was not well and he did not get a great deal of benefit from having 230 volts on tap.

Conditions at Churchill Island were really exceptional for radio and even in the early days on an extremely low power of about 15 watts, there was no problem in working DX all over the World on 10 metres.

The lack of any real interference electrical, mechanical, or anything in that way did make an enormous difference to both transmission and receiving generally. Included in the regular visitors to the Island, apart from myself, were Arthur Tinkler, VK3ZV, George Benwell, VK3KQ, Max Cumming, ex VK3XN, and the late Bill Mitchell, VK3UM.

Yours faithfully,
Arthur Evans, VK3VQ

The Editor, A.R.

Dear Sir,

For what I would believe to be obvious reasons, I have tried to refrain from making any comments about Amateur Radio. However, I feel that the letter from Mr. V. H. Leonard in June issue, should not go unchallenged. I have seen all issues of "AR" produced (including the war-time reneoed issues) and consider that the production has reached an all-time low.

Perhaps I have been unfortunate enough to receive exceptionally poor copies since April, with the May issue being if possible, the worst of all.

Please Mr. Editor, may we have a clean and clear readable print before we all go blind and need the Braille issue which apparently Mr. Leonard receives.

I would imagine that you are already aware that there are a couple of errors in the captions to the pictures, but you may not be aware that "Ohm's Law Simplified" which you credit to VK2II has appeared in "AR" on two previos occassions, and if memory serves me correctly, was also issued as a full page supplement in "AR" by courtesy of one of your advertisers.

Yours faithfully,
K. E. Pincott, VK3AFJ
(Immediate Past Editor, A.R.)

(Apologies have previously been extended to Neil Penfold and Russell Kelly for transposing the captions below their photos on page 12 of June A.R. — Ed.)

Dear Sir,

In reply to Fred Stirk, VK2ABC, regarding firsts for QSO to KH6 and VK9 on 50 mcs, I supply the following details.

On 26th August 1947 I QSO'D W7ACS/KH6 on 50 mcs breaking the then World Record for distance and being the FIRST VK to QSO outside of Australia. (See QST, October 1947) Later on Eugene was issued the callsign KH6PP and this is the same person that Fred made a QSO with in May 1950.

I do not have available my QSL card from VK9XK, but my log shows that I did QSO him on 29th December 1951, just 9 days before Fred. No doubt other VK stations contacted VK9XK during this period. I do not claim a first for this QSO.

It is interesting to set the records straight.

Yours sincerely
C.H. CASTLE
VK5KL

Dear Sir,

Referring to a letter from Fred Stirk, VK2ABC (Page 4 June A.R.), I think a few other Hams may still be alive who had earlier contacts with D.X. stations on the V.H.F. bands.

I worked KH6PP at 20.20 hrs., on 20/10/49 with Sigs. S5 and again on November 27th, 1949 at 12.30 E.A.S.T. with Sigs. again S5.

I also worked VK9XK on June 6th 1952.

KL7AD was heard S7 on 28/11/49 for a short time.

JA2AZ was heard S7 on 28/11/49 on CW. This was subsequently found to be an automatic keyer and JA2AZ was not listening. He was also heard on 30/11/49.

A number of W6 stations were heard around this time, but no contacts were made.

Equipment in use at the time was an SCR 522 Tx, and a modified Service receiver.

As Fred Stirk VK2ABC, John Peel VK2WJ, and myself all lived within a quarter of a mile of each other at Maroubra, we usually heard the D.X. signals first as the band appeared to open from the East for overseas D.X.

I have Q.S.L.s and Logs to confirm the above facts.

Yours faithfully,
Vaughan Wilson.
VK2VW.

Dear Sir,

With the decline in the Sunspot Cycle conditions are certainly down but I cannot understand why the vast majority of VK stations just stick to 20m and moan no DX. Certainly 15m is open during daylight hours. Whilst I hear few stations from VK, those I do hear have excellent signals and include all VK districts. With 10m the position is even worse. During last week, mid June, I asked VK stations in the 2,3,4,5 Districts to try 10m and we ALL got through, though often the signals were weak. The trouble with 10m is everyone listens and no one calls. In this connection the beacon service is invaluable for knowing when the Band is open yet I find few Australian Stations are aware of this service. Active 24 hour beacons on CW, with identification every minute, are:—

28.175	VE3TEN	(a)	Reports on Beacons (a) to (d)
28.180	ZC4CY	(b)	please send to G3DME and will
28.185	GB3SX	(c)	be greatly appreciated by
28.190	3B8MS	(d)	R.S.G.B. Scientific Studies Committee.
29.195 & 28.200	DLIGI		Switches to 28.200 between 15-20 and 45-50 minutes past each hour.

It is important to extend these Beacons to other areas. I have tried in Malaysia but at present Telecomms here are not willing to permit Beacons or Repeaters. I am sure it would be invaluable if the W.I.A. could set up a Beacon in Australia especially in the Central or Northern Regions. Excessive power and expense is not required. GB3SX is only 25 watts to a ½ w dipole and I understand the R.S.G.B. has provided assistance with the keyers for the overseas beacons.

I could hear GB3SX every week and month of 1972 and usually at least a few days every month in 1973. One often hears it S3 on an apparent dead band, then calls CQ on 28.600 and back come the calls.

73,
James C. Pershouse 9M2DQ

Dear Sir,

I feel that the question of MCW is quite an important one as raised in the key section of the July 1973 issue of A.R.

A group of us here in Sydney have been running AM on 40 metres from our Yaesu (carrier with inserted sideband) transmitters and transceivers to allow those fellows who may be tuning across the short wave dial, perhaps for the first time, to discover the world of amateur radio. However, we would very much like to use MCW as well as AM so as to demonstrate the fascination of CW communications and thus create an interest in this mode.

160 metres MCW is an excellent idea as pointed out, especially for those with only a broadcast receiver. However, for those with a two band short-medium wave portable receiver, the tuning range only covers 6 to 12 MHz in many cases and thus 40m is the only band on which listeners have a chance of gaining an interest in amateur activities.

Thus if we were able to use MCW with our present AM transmissions we would be very keen to do so. We have been transmitting slow CW on 40 metres during school holidays, but most of our young short wave listeners cannot satisfactorally resolve this mode.

This weekend we will have commenced MCW practice on 52.525MHz hopefully.

Please persist in your efforts concerning the use of MCW on the H.F. bands. We are keen to use it on 160 and 40 metres and also very importantly on 11 metres which looks like becoming the major Novice band due to the large frequency allocation and the availability of AM equipment.

Yours faithfully,
S. Voron VK2BVS
J. Pages VK2BYY

Dear Sir,

After having thoroughly read through the July copy of AR I have decided to write concerning the special item which appeared on page 19, concerning the history of Australian Amateur Radio.

There has been for some time a growing band of collectors who are collecting and restoring early radio and associated equipment. I also am a collector of these items. To this date these collectors have not banded together to any extent to really know how many there might be, but all appear to have the same object in mind.

My own collection which has been gathered over a period of years covers from the early phonograph to present day standards. I have a fairly good collection of early radio, mostly being between the period 1925 to 1930 and consisting of commercially made receivers. I have found during my travels in search of early sets that the amateur made gear as referred to in the article is practically non-existent and have yet to acquire any sets of the early years. Most of this period have simply been thrown away or just plain lost during the passing of time. There are the odd items which have survived, for example morse keys of which I now have a few of or the odd meter.

One of my earliest finds is a framed introductory letter as issued to a Staff Sgt. W. Endacott, R.A.M.C. from the Wireless Institute, Victoria and is addressed to:- President or Secretary, Wireless Institutes, Throughout the World. — and requesting all privileges to be shown to the bearer. Also attached is the current membership card which gives the member's address as, 15 Spring St., Melbourne. Attached also is the membership badge. The date of issue I have omitted to say earlier is the 19.9.1914 for the letter and the card is dated 1.9.1914. Incidently the letter was signed by a Vernon Cole.

I also have other items of the earlier period, too numerous to list here but do not have enough to make up a definite complete item of the earlier period. Whilst my collection of this period is small other collectors may have been fortunate to have complete items. I feel safe in saying that the early days are being looked after but until collectors can get together in some way it will not be known to what extent these items are being preserved.

To digress slightly I mention another society "The Phonograph Society of Australia" of which I have been the Federal Secretary of since formation some six and a half years ago, and up till this month have produced the bi-monthly magazine "The Phonogram". We started off with from memory, six members and now have over 130 scattered throughout Australia. There is also a State Branch been formed in Victoria to give closer contact between members in this state. Due to the formation of the Society it is amazing to learn of the items that members have found that have survived the period of time.

Not that I am suggesting here that we form a Society for the Preservation of early radio but I feel that this may be the only way in which the amount of survival may be gauged. Most collectors are usually only too pleased to show what items they have and usually are well restored to working order. I also feel that most collectors would not hand over items which are considered precious to their owner, to a Federal Body but see no reason why they could not be catalogued in some way.

To give myself a further pat on the back I am rebuilding part of a house which I had shifted to here in which my collection is to be on permanent display. I hope to be able to show from the early days of the phonograph, through the radio or I should say the early days of radio and a collection of wartime (1939-45 era) sets plus various other mechanical objects of the early days, but the main theme is on sound reproduction. If the powers to be at the various government departments give approval it is hoped that the set-up will be registered as a "Museum."

Should yourself or any interested member be passing this way please drop in and have a look. I have had help from various amateurs, especially my good mate John Woodburn, of Dunkeld, all have been very helpful in the cause.

Yours faithfully,
Colin Gracie.

CLUB/ZONE/DIVISION NEWS

- The Publications Committee wishes to advise that the call on AR for space to print material is so great it is not possible to include a section devoted to Divisional, Zone or Club news.
- Arrangements were made with all Divisions that such news would appear in Divisional Bulletins If so required, and accepted by Divisional Bulletin Editors. Bulletins, when submitted, are carried as inserts in AR mailed to members of the Division concerned.
- It has been agreed however that AR should include an Events Diary to contain **very brief details** of forthcoming events. Items for this Diary **MUST** reach the Editor not later than the 1st of the month prior to publication.

Ionospheric Predictions

with Bruce Bathols, VK3ASE

September 1973

This month's predictions from information supplied by the Ionospheric Prediction Service Division indicate point to point band openings for at least 50% of the month.
Times are G.M.T.

28 MHZ

VK2 to KH6		2200-0100	
" " VK9		2400	
" " W6		2200-2400	
" " JA		2400-0500	
VK3 " VK9		2300-0100	
VK4 " W6		2300-0100	
" " JA		0100-0700	2200-2300
VK5 " VK9		2300-0100	
" " JA		0100-0500	
VK6 " JA		0200-0800	
VK7 " VK9		2300-0200	
VK8 " SU		0800-1200	
" " KH6		2300-0600	
" " JA		0500-0900	
" " 9G1		0700-0800	

21 MHZ

VK3 " SU		0400-0900	
" " ZS		0500-0800	
" " G	S.P.	0800-0900	
" " UA		0400-0900	
" " W6		2100-0400	
VK4 " SU		0400-0900	
" " ZS		0400-1400	
" " G	S.P.	1000	
" " G	L.P.	2100	
" " UA		0400-1000	
" " W6		2000-0400	
VK6 " SU		0400-1100	
" " ZS		0500-1100	
" " G	S.P.	0700-1000	
" " UA		0400-1000	
" " W6		2300-0400	

14 MHZ

VK2 " SU		1100-1700,	2100-2400
" " ZS		0400-1200	
" " G	S.P.	0700-1700,	2100
" " G	L.P.	0700-1100,	2000-2400
" " UA		0800-1700	
" " W6		0300-1000,	1500, 1900
VK3 " ZL		2000-1100	
" " SU		1100-1400,	2200-2400
" " KH6		0300-1400,	1900-2000
" " ZS		0400-1200	
" " G	S.P.	0900-1700,	2100-2200
" " G	L.P.	0700-1000,	2000-2300
" " VKO		2100-0900	
" " VE3	S.P.	0300,	1200-1600
" " VE3	L.P.	2200-0100	
" " UA		0800-1700	
" " W1		0300-0400,	1200-1500
" " VK9		2000-1700	
" " PY		2100-1100	
" " W6		0300-0800,	1500-1600
" " JA		0500-1700,	2100-2400
" " 9G1	S.P.	2200-0800	
" " 9G1	L.P.	0300-1100,	1900-2000
VK4 " SU		1100-1700,	2100-2400
" " ZS		0400-1400	
" " G	S.P.	0600-1600,	2100
" " G	L.P.	0700-1100,	2000-2400
" " UA		0700-1600	
" " W6		0300-1000,	1500, 1900
VK5 " SU		1100-1800,	2200-2400
" " ZS		0400-1200	
" " G	S.P.	0900-1700,	2200
" " G	L.P.	0700-1100,	2100-2300
" " UA		0800-1700	
" " W6		0400-1000,	1500-1600
" " PY		2100-1200	
VK6 " SU		1200-1900,	2300-2400
" " ZS		0400-0800,	1000-1400
" "	S.P.	1000-1900	
" "	L.P.	0800-1200,	2200-2300
" " L		0900-1800	
" " W		0500-0800,	1500-1700
" " PY		2300-1300	

7 MHZ

VK2 " SU		1500-2100	
" " ZS		1500-2100	
" " G	S.P.	1500-2100	
" " G	L.P.	0700	
" " UA		1400-2100	
" " W6		0700-1500	
VK6 " SU		1500-2300	
" " ZS		1500-2300	
" " G	S.P.	1700-2300	
" " UA		1400-2300	
" " W6		0900-1500	

Smoothed monthly sunspot numbers predictions, September 34, October 32, November 30, December 28.
Swiss Federal Observatory, Zurich. ●

Hamads

* Eight lines free to all W.I.A. members. $6 per 3 cms. for other amateurs and S.W.L's.
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CW TX AT20 150W complete working order 80/40/20 MO/CO, isolator, buffer stages all 807s,final single 813, PSU 866s, cooling fans. Full protection O/load contactor, interlock, gate switches.. Instruction manual. One ham modification for remote control. VK3VG. Ph. (03) 850-1894, 7 p.m.

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QQEO 3/20 1 used, 2 new $15; QQEO 2/5 2 new $10; QQEO 3/12 3 new $10; FM 2 Mx Pye Premier Carphone, solid state, final includes boards for 50W plus xtls for ABC, 1 plus 4 Rx OK but TX needs attention $85: VK3EW QTHR.

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VK3AQV, QTHR, (03) 874-5942.

Audio amp., chokes, valves, no charge. Power supply, $10. Transceiver Type 3 $20, No. 62 $10. Ph. (03) 347-7491, VK3NI QTHR.

Heath HR10 Amateur Rx 80 to 10. 'S' meter, NL B.F.O. Complete with manual and transformer, $120. Johnson Matchbox aerial impedance matching unit with instructions, $85. Astatic D104 microphone as new, $15. VK3DS QTHR.

Galaxy V MKII Transceiver with power supply. VK3KR QTHR. Ph. (051) 44-1414 AH.

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Digital Frequency Counter, 5 digit, 7 segment display. O.I. kHz—220MHz, 8 digit readout capability. As new $250. VK3ZX. 5 Tucker Court, Traralgon, 3844. Ph. (051) 74 1114, A.H.

Yaesu FL 200B TX, good order, $200; AWA Car Phone Junior Channel A, $25: VK3AR, Wartook Wayside, Horsham, 3400.

Drake 2A Rx, xtal cal, Q mult. NL, match spk., 6 HF bands $200 ONO; Yaesu FL100B Tx 120w PEP only $165; Lafayette KT340 0.5-30 Mhz, 4b., cal bs, Qmult $85. QTHR Ph. (03) 57 8600.

Viceroy Mk1 and Drake 2B complete SSB station all 5 bands. Excellent condition with handbooks etc. $320, Allen Crewther VK3SM.
QTHR Ph. (03) 36 4406 or 9-4 (03) 62 9510.

MR10A 2M FM Carphone, Channels B & 4; Nuvistor front end; good order; AC & DC supplies $35. VK3UG (03) 231-2028, QTHR.

Pye Overland SS 25w 2 Mx FM Ch A.,B,1, $185. Kyritsu VTVM $45; Vinten MTR B Ch A.B.C.D. 1, 4 $120, all above ONO. Super HI PWR QI (100w) driving lamps Hella $60; Magn cartridge ADC 25 as new $75; CRO BWD 905-15 Mhz bandwidth with probes etc, $350; Vinten MTR 16 G.A.M. $70. VK3YAV QTHR Ph. (03) 391 6856 A.H.

Silent Keys

BOB GLOVER VK6RG.

To most people June the 6th, has no particular significance. However it was on June 6th, that Bob Glover VK6RG celebrated his 73rd birthday.

A little more than two weeks later he had passed away. Bob had lived alone for many years and it could be truthfully said that amateur radio was his life. It would be a most unusual day if Bob was not on the air on either 20 metres or 80 metres. These were the only bands his home brew transmitter would cover and he extracted the maximum from them.

Although not a "D.X. hound", never-the-less he had worked more than his share of the exotic calls. However he was just as happy ragchewing on 80, and what more pleasant way to spend an evening?

Bob started in ham radio as a Z - call, but after gaining his full call, the lure of the H.F. bands claimed his full attention.

It is hard to recall many operators who came up on the bands so consistently, day after day, year after year, as did Bob Glover.

Amateur radio will be much the poorer with his passing. 73 old timer.

Ross Greenaway, VK6DA.

K. A. THOMAS VK6TA

We are sorry to report the passing of K. A. (Ken) Thomas (VK6TA). Ken had not been too active in recent times, but on his recent transfer to Perth from Geraldton had been busy picking up the reins again. His early passing is much regretted by his many friends.

Ron Vaughan, VK6RV.

Enthusiast requires early Radio Sets, valves, parts, speakers and books prior to 1930. Good prices paid. Details to Edgar Road, San Remo, 3925. Phone 107. M. O'Brien, Experimental VK30.

WANTED

Collins 62S-1 must be clean and in good condition. Price, etc. to VK3ZX, 5 Tucker Crt. Traralgon, 3844.

2M F.M. RX 240V at a reasonable price. Also L5/6 first 42/319 IF for Philips radioplayer, mod 3041 or any other parts for above model. B. Boyce, 146 Abbott St., Sandringham, 3191.

C.R.O. Servicescope S32 or similar 3" Scope with DC to 5Mhz amp, high sensitivity and slow sweep. VK2ASI QTHR.

Rebecca Indicators and Receivers, likewise Eureka and Racoon gear, or any pulsed Radar or Loran equipment and handbooks, A.P.S.4 scanner or cutler feed section for same. RAAF type 1082RX 1083 TX, MN26H radio compass controller. VK3AQB Ph. (03) 337 4902, AH.

Collins Receiver 51J, 51J2, 51J3 or 51J4 in clean condition with table cabinet. Pay reasonable market value. VK3IB, QTHR.

RSGB Amateur Radio Circuit book, one copy required. VK3LP QTHR or P.O. Box 20, Castlemaine, 3450.

Collins 30L1 Linear. Particulars to VK2AS, 7A Melbourne Rd., East Lindfield, 2070. Ph. (02) 467 1784.

Pal Colour TV Receiver, condition not important. Full P.A.L. only. Details to VK2ZGB, 80 Murray Park Rd., Figtree, 2525. Ph. (042) 28 9101 A.H.

DISPOSAL SALE

Of SURPLUS and EX GOVERNMENT ELECTRONIC GEAR

STOCK MUST BE CLEARED

NO REASONABLE OFFER REFUSED

OPEN 9.30 AM – 5PM Monday to Friday 9 AM – 12noon Saturday

Brand new Valves and Semiconductors.

2N 3055	**$2.00**
OA91	**15c**
807 Valve	**$2.00**
IT4	**75c**
IR5	**75c**
6BA6	**$2.00**
2E26	**$3.00**

Coil Formers 1¼ inch diameter. Octal base **45c**

AVO Model 7 & 8 Multimeters. As new condition from **$35.00**

VHF Transceiver TR 1935 (Suitable for 2 metres AM) 24 Volt **$28.00**

No. 19 & No. 62 Transceivers. Plenty of part wrecked units any reasonable offer will buy.

Headphones, ex Army. Brand new. Low impedence in sealed boxes **$2.00 pair**

Transformers, A & R 240 V - 12Volt new **$2.50**

LARGE QUANTITIES of hard to get valves, transformers, semi-conductors & components, dural tubing, cables multicore & coaxial, connecting leads Cannon type plugs multipin, relays PMG types & miniature, telephone parts, teleprinter units, all types of panel meters new & used, test equipment, multimeters, signal generators, oscilloscopes, power supplies, standard racks and thousands of component parts, potentiometers, capacitors oil filled & electrolytic, high & low wattage resistors, transistor circuit boards, crystals.

TRANSCEIVER PYE No. 62

1.6MHz - 10MHz in 2 continuous bands. 12 Volt 5 Amp DC supply air tested and complete with all cables and Mic. **$27.50**

A.W.A. RC Audio Oscillator, 20Hz to 200kHz in 4 bands. HI Z & 600 ohm 240 Volt AC **$65.00**

Army Transceivers—We have just received a shipment of the most modern we have ever been able to offer. All are air tested and complete with 24 Volt DC power supply, Leads and Ear Phones. All are continuous coverage. Manufactured by Plessey.

C13 1.00MHz - 12MHz FM/AM $65
In 12 bands each of 1MHz.

C42 36MHz - 60MHz FM $65

B47 38MHz - 56MHz FM $45

C11 TRANSMITTER 2MHz - 4MHz 4MHz - 8MHz, 8MHz - 16MHz. Continuous coverage with built-in Calibrator. Complete with 24 Volt Power Supply **$65.00**

FREQUENCY METER Manufactured by American Disco-Wyne Model AM/URM 32A. 125kHz 1000MHz. AC Power Supply Head Phones and Calibration Charts **$130**

Bendix BC227 Frequency Meters from **$35.00**

COAX CABLE 58 ohm Ascand 15 PI/24. Brand new 1/8" outside diameter. 12c per yard, $10 per 100 yard reel.

PERSONAL SHOPPERS ONLY ON LARGER ITEMS OUR USUAL PROMPT MAIL ORDER SERVICE ON ALL OTHER ITEMS

HAM

RADIO DISPOSALS

104 HIGHETT STREET, RICHMOND, VIC., 3121

(Near Lennox Street) Phone 42-8136

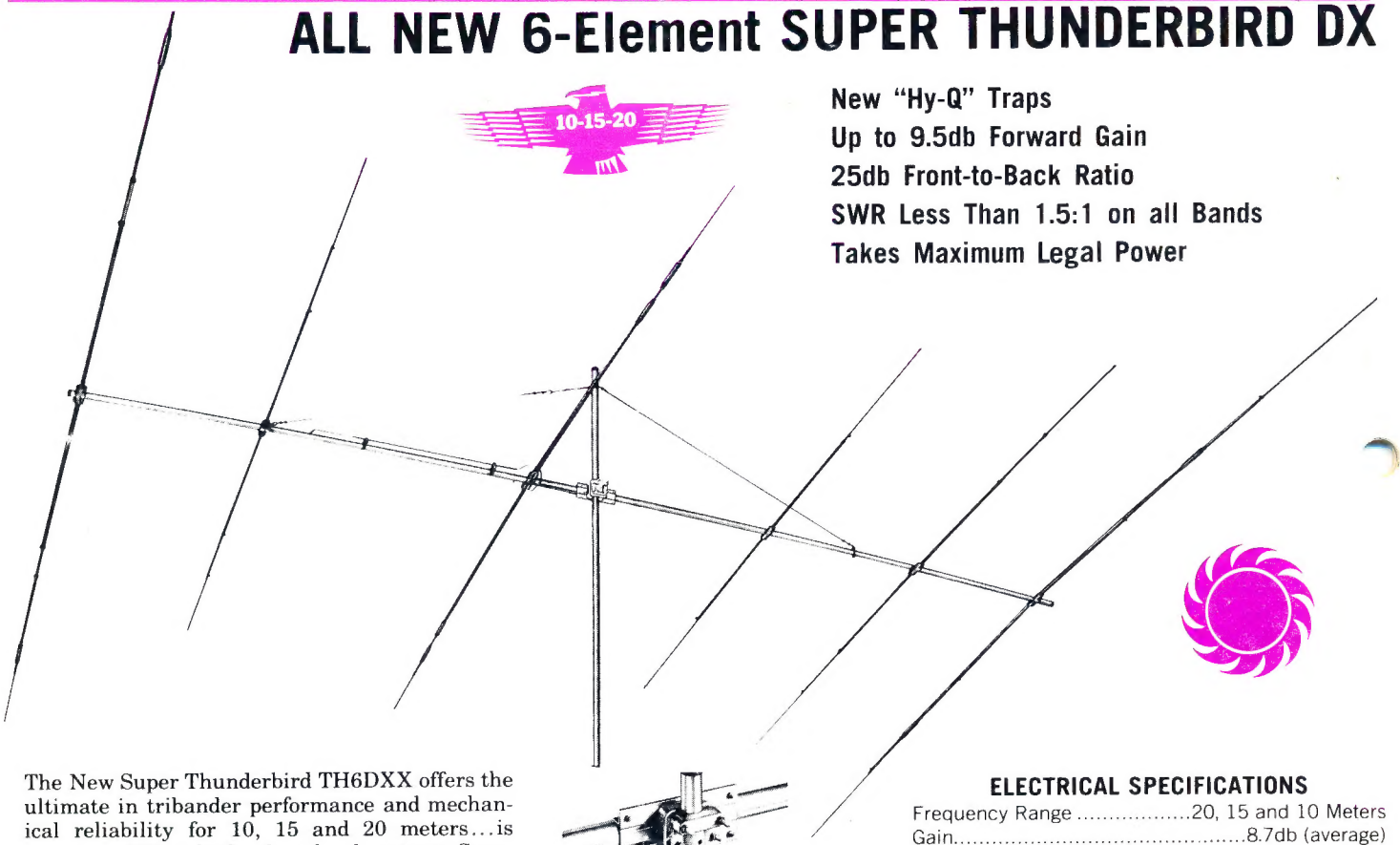
SEPTEMBER, 1973
Vol. 41, No. 9

hy-gain NEW SUPER THUNDERBIRD TRIBANDER BEAMS for 10 15 and 20 METRES

ALL NEW 6-Element SUPER THUNDERBIRD DX

10-15-20

New "Hy-Q" Traps
Up to 9.5db Forward Gain
25db Front-to-Back Ratio
SWR Less Than 1.5:1 on all Bands
Takes Maximum Legal Power



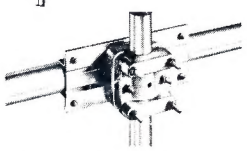
The New Super Thunderbird TH6DXX offers the ultimate in tribander performance and mechanical reliability for 10, 15 and 20 meters...is superb on DX and other long haul contacts. Separate Hy-Q traps, featuring large diameter coils that develop an exceptionally favorable L/C ratio and very high Q, provide peak performance on each band whether working phone or CW. Exclusive Hy-Gain Beta Match, factory pre-tuned, insures maximum gain and F/B ratio without compromise. Feeds with 52 ohm coaxial cable...SWR less than 1.5:1 on all bands. Mechanically superior construction features taper swaged, slotted tubing—allows easy adjustment and readjustment. Taper swaged tubing permits larger diameter where it counts! And, less wind loading. Full circumference compression clamps are mechanically and electrically superior to self-tapping sheet metal screws. Large diameter, heavy gauge aluminum boom...heavy cast aluminum boom to mast clamp and heavy gauge machine formed element to boom brackets. A totally new dimension in Tri-Bander performance.

AVAILABLE NOW EX STOCK

BAIL ELECTRONIC SERVICES

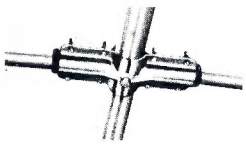
60 Shannon St., Box Hill North, Vic., 3129.

Ph. 89-2213



Tilt-head, universal boom-to-mast bracket—all new, cast aluminum bracket accommodates masts from 1¼" x 2½". Allows easy tilting for installation, maintenance and tuning, provides mast feed-thru for beam stacking.

Taper swaged, slotted tubing—new tubing on all elements allows easy adjustment and re-adjustment. Taper swaged to permit larger diameter tubing where it counts! And, less wind loading. Full circumference compression clamps are mech. and elec. superior to self-tapping sheet metal screws.



Extra heavy gauge, machine formed **element-to-boom brackets**, with plastic sleeves used only for insulation. Bracket design allows full mechanical support.

ELECTRICAL SPECIFICATIONS

Frequency Range	20, 15 and 10 Meters
Gain	8.7db (average)
Front-to-Back Ratio	25db
Maximum Power Input	1 kw AM; 2 kw P.E.P.
VSWR (at resonance)	1.5:1
Impedance	50 ohms

MECHANICAL SPECIFICATIONS

Longest Element	31.1 ft.
Boom Length	24'
Turning Radius	20
Wind Load at 80 MPH	156 lbs.
Maximum Wind Survival	100 MPH
Net Weight	61.5 lbs.
Mast Diameter	1¼" to 2½"
Boom Diameter	2"
Surface Area	6.1 sq. ft.

Hy-Gain Beta Match—Advanced design from company that invented the Beta Match. Tapered impedance provides most efficient 3 band matching. Provides DC ground to eliminate precipitation static.

Qld. Rep.: **MITCHELL RADIO CO.**, 59 Albion Road, Albion, 4010, Telephone 57-6830
N.S.W. Rep.: **STEPHEN KUHL**, P.O. Box 56, Mascot, N.S.W., 2020. Telephone: Day 667-1650 (AH 371-5445)
South Aust. Rep.: **FARMERS RADIO PTY. LTD.**, 257 Angas St., Adelaide, S.A., 5000. Telephone 23-1268
Western Aust. Rep.: **H. R. PRIDE**, 26 Lockhart Street, Como, W.A., 6152. Telephone 60-4379